Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. 2. NEW YORK, AUGUST 21, 1847. NO. 48.

THE
SCIENTIFIC AMERICAN:
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.

TERMS:—$2 a year—$1 in advance, and the remainder in 6 months.

☞See Advertisement on last page.

POETRY.

CHAMBER SCENE.

She rose from her untroubled sleep,
And put away her soft brown hair,
And in a tone as low and deep
As love's first whisper, breathed a prayer,
Her snow white hands together pressed,
Her blue eyes sheltered in the lid,
The folded linen on her breast,
Just swelling with the charms it hid—
And from her long and flowing dress
Escaped a bare and slender foot,
Whose shape upon the earth did press
Like a new snow-flake, white and "mute,"
And there from slumber pure and warm,
Like a young spirit fresh from Heaven,
She bowed her slight and graceful form,
And humbly prayed to be forgiven.

Oh, God! if souls unsoiled as these
Need daily mercy from thy throne—
If she upon her bended knees—
Our lovliest and our purest one—
She with her face so pure and bright,
We deem her some stray child of light,.
If she with those soft eyes in tears,
Day after day in her first years,
Must kneel and pray for grace from Thee,
What far, far deeper need have we!
How hardly, if she win not Heaven,
Will our wild errors be forgiven.

BACHELOR'S LAMENT.

Oh, would I had a girl to love,
To share those blissful hours—
My bliss to crown while she would prove
The fairest of life's flowers:
No more I'd crave if this light heart
A woman's worth might know;
And pure affection's priceless gem
The life of love would show.

I'm weary of a single life,
Though all its joys are mine;
There's scarce a pleasure now possessed,
But might be made divine.
If I could claim a "better half,"
And need no longer rove
To find the prize my heart desires,
A gentle girl to love!

Now maidens fair (not yet bespoke),
Why should I longer tarry,
I'm twenty-five years old next month,
And am resolved to marry?
So if within you reigns a heart
Which might with mine accord,
Oh! do not let this leave you so,
But haste to send me word.

And that will be a happy day,
The day I claim my belle,
And that will be a happy theme,
On which we both may dwell;
And I will be a happy man,
When her sweet smiles I move—
And she shall be a happy girl—
She shall—the girl I love.

Precocious Genius.

Peter Barnocks, come up and say your lesson.
Yes sir.
What made Eve eat the forbidden fruit?
Becuz she was tell'd she didn't ought to.
How do you know that made her eat it?
Becuz when our Judy was forbid to speak to the fellers, she went and sot rite down in John Diddle's lap.

HATCH'S STOP MOTION FOR LOOMS.---Figure 1.

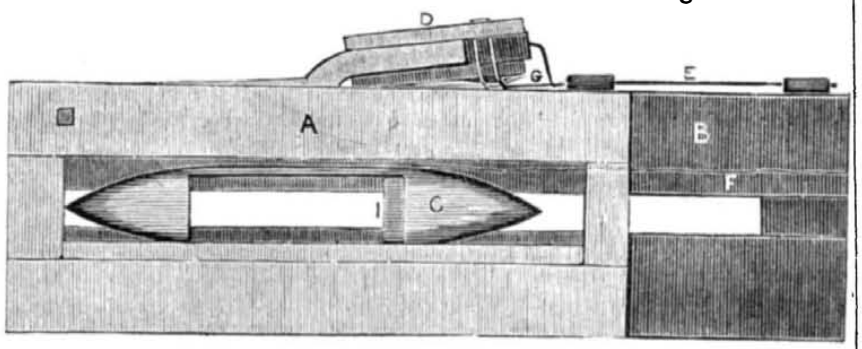


Figure 2.

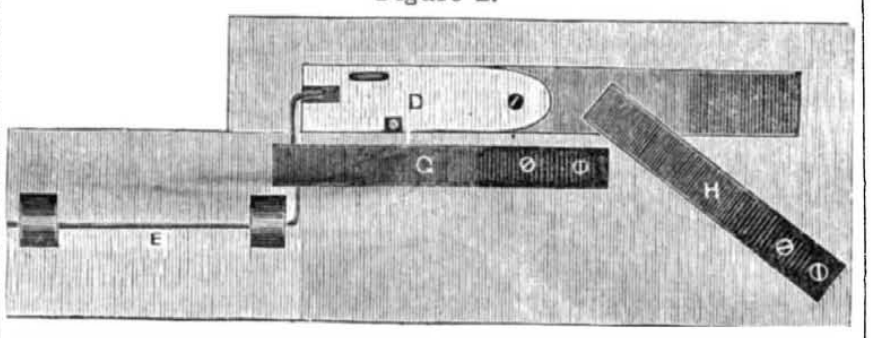


FIG. 1.—A is the shuttle box, and B F part of the lathe. C is the shuttle. D the finger. G E the spring rod. This motion is designed to have a weaving loom stop when the filling (weft,) is run out, or the thread broken. On the shuttle there is a small projecting eye, which runs into a groove in the box where the thread is gently caught by two spring wires near G, and springs the shaft on the belt which drives and keeps up the motion of the loom while there is a thread on the cope in the shuttle. When the thread breaks or is run out the two wires cease to act on the spring rod and the motion of the loom ceases. This is a vertical view of the box with the shuttle in it.

FIG. 2.—Is a sectional side view of the box. D is the finger. E the connecting spring rod, and G is a flat spring upon the rod to keep it steady, and H one upon the finger, so that the finger and rod by these careful means will not be liable to get out of tension.

Mr. Thatcher E. Hatch, of New Bedford, is the inventor, who says that he has it in successful operation, and whose model the above engravings represent. We have not seen any stop motion of the same nature before, but we have frequently seen the correct spring balance stop motion of the looms made at Pawtucket and other places, mostly for check looms, which operate well.

Hitching the Cussed thing.

The N. Hampshire Register gives the following account of an incident on the New Haven and Hartford Road, soon after it went into operation. The train stopped at Meriden to wood up, and a flighty gentleman who was probably for the first time in his life, in a railroad car, and who held on to his seat with both hands, from the moment the cars left Hartford looking as though he expected every moment to be shook out of the window, suddenly stepped out on the platform, and took a rapid look at the locomotive. "Anything the *matter!* I should think there was something the matter, if you ever noticed it! Why they've stopped right in the middle of the road, and *hain't hitched the cussed thing!* 'Spose and it should start? hey? I guess some of us 'ud be in the kingdom come, afore night!" A roar of laughter from the passengers in no wise altered the man's views of the superior safety of his position, "*in case the cussed thing should start.*"

Served him Right.

An amusing scene was recently enacted in a church in the county of Leicester, The rector, when about to deliver his sermon, observed a man sleeping under the pulpit. The reverend gentleman thereupon refolded his sermon, and sent it whirling at the sleeper's head; who started up, rubbed his head, looked at the sermon, and supposing the minister had accidentally dropped it, picked it up, and amid the titters of the congregation, mounted the pulpit stairs, and rstored the precious roll to the preacher, who forthwith read off his sermon as if nothing had happened.

It is reported that a boy in Vermont grows so fast that his clothes are too short before they are put on, and he has lately grown three inches through the crown of his hat.

Dialogue between a Man in want of Work and a Man in want of a Workman.

Applicant—Are you in want of a laborer, sir?

Gent.—I am.

A.—I'm out of work sir, and should be glad to serve you.

Gent.—Are you a reformed drunkard?

A.—No, sir—I never drank in my life.

Gent.—I'm sorry for that—but perhaps I can do something for you yet. Were you ever in the State Prison?

A. (indignantly).—No sir! I'm a poor man sir, but thank God, I'm honest,

Gent. (rising in a rage). Get out of my sight you infernal puppy! what do you mean by coming here and asking for work? I'd have you to know I'm a philanthropist, and I wont give any employment to a fellow who has never even been in a watch house or seen the inside of a police court. If you'd only stolen a gridiron—but get along about your business—you ain't even a rascal!—*Boston Times.*

Standing Guard.

"Jack was yer ever appinted to stand guard at a fire? It is a glorious chance I assure ye?"

"How so, Bill? I should think it was a plaguy bad job to have to stand over a pile of goods and look that nobody steals 'em."

"Not at all, my boy. Its the way I've picked up many a glorious nab; for when you stands guard, you know nobody is guard over you, and the way you can monopolise is glorious."

Tall Trees.

There are trees so tall in Missouri, that it takes two men and a boy to look to the top of them—one looks till he gets tired and another commences where he left off.

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending August 7, 1847.

To Thomas G. McLaughlin, of Philadelphia, Pa., for improvement in Hydraulic Engines. Patented August 7, 1847.

To David Anthony, of Sharon, New York, for improvement in Horse Power. Patented August 7, 1847.

To Timothy Gilbert, of Boston, Mass., for improvement in Piano Fortes. Patented August 7, 1847.

To Jonathan Smith, of Frankfort Maine, for improvement in machinery for Twisting Withes. Patented August 7, 1847.

To George Page of Washington, D C., for improvement in Ploughs. Patented August 7, 1847.

To Horace Everett, of Windsor, Vermont, for improvement in Propellers for Vessels.—Patented August 7, 1847.

To Chester Stone, of Rootstown, Ohio, for improvement in Self-acting Cheese Presses. Patented August 7, 1847.

To John Laughlin, of Gettysburg, Pa., for improvement in Whiffle Trees. Patented August 7, 1847.

To William Cundell, of Paterson, New Jersey, for improvement in Wool Burring machines. Patented August 7, 1847.

To Horace Parsons, of Houston, Illinois, for improvement in Water Wheels. Patented August 7, 1847.

To James Montgomery, of Memphis, Tenn. for improvement in Screw Propellers. Patented August 7, 1847.

To Rodolphus Kinsly of Springfield, Mass., for improvement in Latches. Patented August 7, 1847.

To John Robertson, of Brooklyn, New York, for improvement in machinery for making Sheet Lead. Patented August 7, 1847.

To Obed Hussey, of Baltimore, Md., for improvement in Reaping Machines. Patented August 7, 1847.

To Martin Butts and Laurette Church, administrators of Damon A. Church, deceased, of Friendship, N. Y., Lovett Hobert, of Friendship, N. Y., W. W. Willoughby, of Chicago, Illinois, for improvement in Harvesting Machines. Patented August 7, 1847.

To David Anthony, of Sharon, New York, for improvement in Threshing Machines.—Patented August 7, 1847.

To William Lamb, of Rome, New York, for improvement in Water Wheels. Patented August 7, 1847.

To Charles Horst, of New Orleans, La,, for improvement in combining a Rocking Chair and Fan. Patented August 7, 1847. Antedated Feb. 9, 1847.

To William H. Pulver, of Troy, New York, for improvement in Fire Grates. Patented August 7, 1847.

To Robert Story and Thomas Hopper, of New Brunswick, New Jersey, for improvement in India Rubber Shoes. Patented August 7, 1847.

DESIGNS.

To Rowland A. Robbins, of Baltimore, Md., for Design for Stoves. Patented Aug. 7, 1847.

To Samuel H. Ransom, of Albany, N. Y., for Design for Stoves. Patented Aug. 7, 1847.

To John F. Rathbone, of Albany, New York, for Design for Stoves. Patented August 7, 1847.

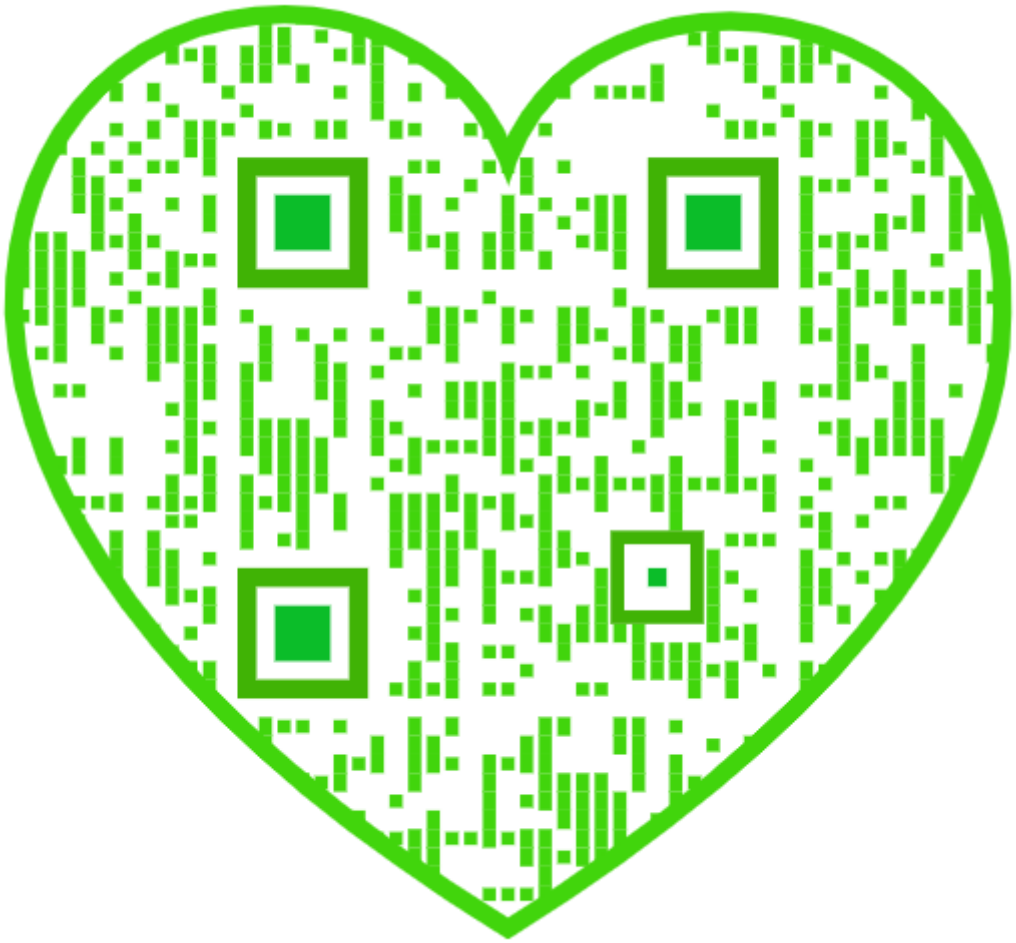
RE-ISSUES.

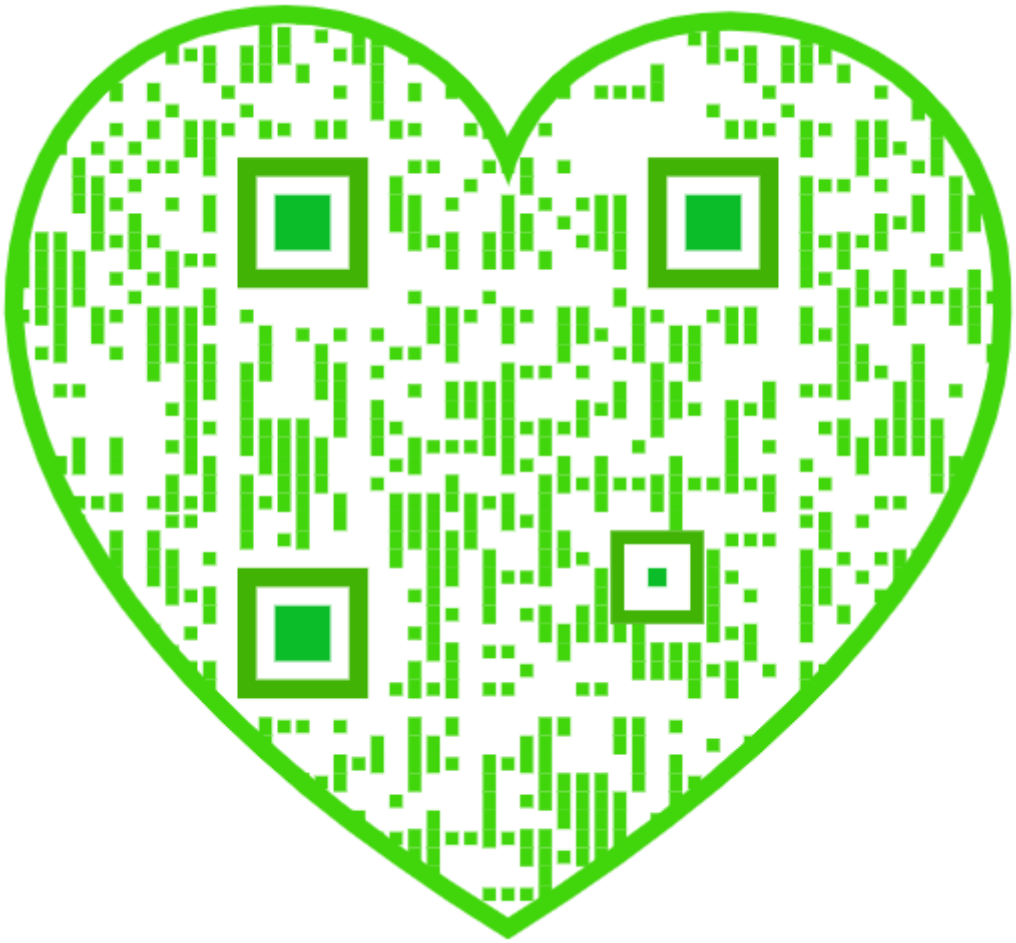
To Francois Durand and Onesiphore Pecqueur, for improvement in making Scabbard Sheaths, &c. of leather. Patented October 15, 1846. Re-issued August 7, 1847.

ADDITIONAL IMPROVEMENT.

To Charles Horst, of New Orleans, La. for improvement in combining a Fan and Rocking Chair. Patented August 7, 1847. Ante-dated Feb. 9, 1847. Additional improvement dated August 7, 1847.

© 1847 SCIENTIFIC AMERICIAN, INC





Steam Hod Carriers.

The Lawrence Courier says: "The contractors on the Bay State Mills, now hoist their brick and mortar by steam A small engine is placed in the lower story of the mill, to which is applied an endless chain running from the engine to the floor upon which the workmen are engaged. To the chain the hods of brick and mortar are fastened by a hook, which is firmly affixed to the hod. On arriving at the top the tenders take the hod from the chains and carry them to any desired part of the building. A man stands near the engine to take off the empty hods as they approach the floor by the downward side of the chain. The labor of about 25 men is saved by this ingenious invention, which was first adapted to this purpose. we understand, at Lowell, last summer"

The Lawrence Courier is somewhat mistaken. We have seen a steam engine doing the same office ten years ago. We often wonder when we see 10 and sometimes 20 laborers carrying the hod for a pittance up a three or four story building—the labor in summer is almost murder—the men who can do it must have iron constitutions. How simple, and with a great saving, would it be to have a block and tackle on a pole and hoist up bricks and mortar in buckets. Two men below would do more work than six men who have to climb a ladder

Co-operation Trading Society.

A Society of operatives have lately been established in London, on the same principle as some in Massachusetts. The London Society lately held a meeting when a paper was read from the American Association containing great propositions to the people of Great Britain This Society, or we should not notice it, has the following beautiful object in view, which was adopted by unanimous resolution. "That to conduct our movement to triumphant consummation mutual confidence is necessary; to promote this it is resolved, as soon as it is in the society's power, to form a reading-room and debating-society, to cultivate an acquaintance and become prompters to each other's virtues, and in this way generate a moral bond of union and brootherhood, the existence of which will be a certain pledge of success."

Parasols in the Drawing Room.

The introduction of gas-lights into private houses has been taken advantage of by the ladies, who under protest against the glare and dazzling uncomfortableness of such bright lights, deliberately *spread parasols* in an evening soiree, and (incidental advantage) converse under and behind the same very agreeably. A pink parasol judiciously held between a lady's face and a gas burner, throws a tender, roseate hue over the complexion, and can be dexterously manoeuvred, of course, to curtail an annoying prospective, or furnish glances in effective monopoly to the privileged. The arts do not seem to have fallen behind the Sciences in the march of improvement.

Obtaining Patents in France.

M. Gardissal, has created in Paris a periodical called *Le Brevet d' Invention*, and a central agency for the purpose—1st, to give advice to inventors before they apply for patents; 2d. to draw the application for patent, caveat, &c, &c. in France and other countries; 3d. to sell the patent rights or to form associations between capitalists and inventors; 4th to dispose of the produce of inventors who speculate for themselves, and consumers to the patented invention; 5th. to take and to transmit to inventors all the useful information, either on cancelled patents or on patents in force; 7th, to advise inventors in all suits in relation to counterfeits.

The agency of M. Gardisal, is established in Paris, No. 17 Boulevard St. Martin.—The French consul in this city reccommends Mr. Gardisal in a very handsome manner.

Railroads in Germany

The German railroads have generally been constructed by companies to which the government has guarantied a minimum of 3½ per cent. interest, contributing one seventh of the capital and consequently taking one seventh of the profits, besides one third of the benefits after the payment of 5 per cent., on all the shares. The dividends so far, have averaged 4½ per cent., and the expenses from half to two thirds of the receipts. More than three fourths of the passengers go by the lowest class carriages, paying four mills and a half per mile; and only three in a hundred take the carriages of the first class, paying one cent and one mill per mile. Several companies have reduced rates of charges for those who subscribe for a certain number of journeys per month, and there are also tickets issued at a reduced rate, for parties going and returning. The total length of the German lines is 2800 miles, over which about sixteen millions of passengers and over one million tons of merchandise are annually conveyed the receipts for merchandise being nearly one third of the gross amount.

White Whale.

Ship Spartan, arrived off Nantucket, last week, while on the Off Shore Ground, took a sperm whale, perfectly *milk white* in every part- It was the size of a 90 bbl. whale, but yielded only 55 bbls. of oil. The teeth were entirely gone, and its appearance denoted extreme old age. When the harpoon struck, the monster darted off in a good style, and gave an average "play" to the pursuers. At first sight, it loomed up in the water like a country church without a steeple.—The "oldest whaleman" never saw or heard of a *white whale*, so far as we have been able to learn.

Girls for Factories.

The Plattsburg Republican says that one hundred girls passed through the village on the 30th ult *en route* for Lowell; and some fifty for the same destination two weeks since. Agents are sent into this country, Franklin and St. Lawrence, and within the past year, more than four hundred have been "picked up" and forwarded to the factories. Good wages are offered them, or they would not leave their homes, and the great manufacturing establishments are doing a business that will "pay," or they would not want them.

Noble Boy.

On Saturday afternoon about 2 o'clock, as some children were playing on the wharf at the foot of Carlisle st. in this city, a little girl fell overboard, and but for the exertions of a lad who was attracted to the spot by the cries of the other children, would have been drowned. The lad, whose name is William Henry Lefferts, and is only thirteen years of age, sprang overboard and rescued the child.

Good Profits.

It is said that M. Banard has in the short period of seven months, realized fifty thousand dollars from his panoramic view of the Mississippi river, in Boston. He has purchased a lot of ground in Broadway, this city, with a portion of the profits, and intends to erect a suitable building upon it, for the purpose of exhibiting his picture.

American Telegraphs.

Beyond 1,500 miles of telegraph are already finished in America, and 5,000 more are under contract to be completed within a year The southern lines are rapidly advancing, and in a few months there will be one unbroken communication between Portland and New Orleans; being a continuous chain of 2,000 miles.

Worcester.

The valuation of real and personal property in Worcester, Mass., this year, is $7,690,850; an increase of over half a million from the valuation of last year. The number of polls 4,303, last year 3,555, The rate of taxation is $1,68 on the thousand dollars.

The Akron Æolian.

We perceive that Messrs, Blodget and Horton's beautiful Æolian is still occupying a great deal of attention. There is scarcely a paper we take up but speaks in praise of it. It is a fine instrument.

Fog Bells.

We have heard it suggested that such detentions as have occurred on the sound by the fog might be prevented by a system of fog bells on the headlands and light-house points, and kept constantly ringing during fogs. If it is practicable in this way to prevent the present detentions which amount to a great sum of *time* in the course of a year, a very slight tax on the vast pecuniary interest concerned would serve to pay the expense and leave an immense saving.

Pasteboard Shoes.

The cheapest shoes is one that you engage and get measured for. If you go into a cheap boot and shoe store, ten to one if you don't come away with a pair of shoes so very cheap that a great part of them may turn out to be brown pasteboard, after a good shower. Such kind of shoes are not uncommon, but they are certainly in these degenerate days, a *new* invention.

Meteors.

On the evening of the 10th inst., a shower of meteors were observed at Burlington, Vt. The meteors seemed to radiate from the neighborhood of Perseus. Most of those observed left a train of light, but in every instance it was immediately extinguished Confining attention to one region of the heavens, extending from Perseus in the east to the Dipper in the north-west, looking towards the north, 38 of these shooting testeroids were counted between 9½ and 10½ o'clock, P. M..

Postal Negotiation.

A "Postal" Negociation is going on between the United States and the United Kingdom, having for its object a permanent arrangement between the two governments for the regulation of postage on letters forwarded by steamers. In consequence of the action of the British government in charging double postage for letters received in England by the Steamer Washington, our government has determined not to allow the mails received by the Cunard line, to be transported over our territory, from Boston to Montreal, after three month's notice.

Commerce.

The mercantile shipping of the civilized world would amount to about 8,000,000 tons; which is worth, new and old, $30 per ton; and nets clear of expenses interest and insurance, 10 per cent, or $24,000,000 per annum. *The appropriation to the British Navy for the current year, is* $33,620,200.

Quick Passage.

It is stated that during the passage of the Sea Witch from Canton for New York, she sailed the distance of 1800 miles, or three hundred miles a day, in six successive days—a feat which was never before accomplished.

Emigration in Canada.

The number of Emigrants arrived at the ports of Quebec and Montreal, during the week ending 21st of July, was 6874; previously reported, 56,855; total, 63,729 To same period last year, 26,836; Increase, 36,893.

The Ring.

Among the Romans, the gift of a ring was a badge of liberation from slavery. Married people may best explain (observes a sarcastic bachelor) whether it is so among the moderns.

The Iron Mines of the Trenton Iron Co.

Mr Peter Cooper has purchased the Andover Iron Mines, the iron of which is of the best quality for railroads, and 60 acres of land, for $6,000.

Copper Mine in New Jersey.

A rich vein of copper has been recently discovered on a farm near Princeton, N. J. Arrangements are making for an extensive examination of it.

Absence of Mind.

We saw a venerable looking cow eating pine saw-dust, under the impression that it was bran. She didn't find out her mistake till night, when it was found out that she gave turpentine instead of milk.

The unthinking bulk of mankind are ever amusing themselves with some pursuit foreign to themselves. A wise man is ever looking inward. What matter what you know, if you do not know yourself.

FROM MEXICO.

At the last advices our army had not possession of the City of Mexico. Gen. Valencia, a creature of Santa Anna, had arrived at the capital with 4000 men and 36 pieces of artillery. The commander in chief of the Mexican army is Gen. Lombardini—he too is the creature of Santa Anna. The Government had prohibited the publication of all papers but the *Diaro Official*. It is reported that the capital is a complete Babel, and that the higher classes long for the approach of the American Army. The accounts, however, are contradictory. It will be a happy time for the world when all wars shall cease—when nations and men shall be guided by the *golden rule*.

The Greek Slave.

Powers' famous statue of the Greek Slave arrived here on Wednesday, having been shipped at Leghorn in the early part of June. It comes under charge of Mr. Kellogg, the painter, of Cincinnati, and is to be exhibited thro' the country for the benefit of the sculptor, and cannot fail to attract great attention. Powers has become a name for America to be proud of, how justly the critics will be eager to judge from a work of the pretensions and reputation of this.

The Telegraphic Wires.

The repairer of the line between Boston and Worcester discovered a day or two since that the wire had been tampered with in the following manner; a short piece of the wire had been broken off, and a piece of silk cord, of the same general appearance, had been fixed so that it could be looped into the place, which would instantly destroy the communication, and at the same time evade the discovery from the repairer.

Heating the Oven and Cooking.

The editor of the Ohio Picayune, enquires of us how is it possible for a sweet industrious woman to be heating the oven and setting bread at the same time. Why cousin of the Great West State, we must just say, that it all depends on the mechanical genius of our down east girls. They get one of Whitney & Montanay's stoves and go on cooking and buttering the best of bread for epicures and editors.

Ladies' Pages.

Ornaments by this pretty name are now in fashion in Paris, consisting of a *gold thumb and finger* suspended by a chain to the waist, and constructed with a spring by which they hold up a lady's dress in crossing wet sidewalks from shop to carriage.

A New Enterprise.

An exchange paper says that a gentleman of Virginia has purchased an island in the Chesepeake and stocked it with *cats* for the purpose of obtaining *the fur*, for the manufacture of fashionable articles of wearing apparel.

Perpetual Motion.

We have this advice to give unto the man who is desirous to commence the study of perpetual motion just begin practising the trick of getting into a basket and lifting himself up by the handles. When he succeeds at that, he can go ahead with perpetual motion with some prospect of success.

Upward of 420 tons of bomb shells have been turned out from St. Louis, since the commencement of the war.

During the last week there arrived at this port 10,670 passengers, the great part of whom were immigrants

An impulse, a casual conversation, a chance visit, or something equally unimportant, has changed the whole destiny of life and has resulted in virtue or vice—in weal or woe.

The new Mechanics' Institute in Cincinnati is about erecting a Mechanics' Hall building, for which $14,000 have been subscribed

The Georgia summer costume in riding is a shirt collar and a pair of spurs. How cool, such weather as this.

© 1847 SCIENTIFIC AMERICIAN, INC

FATHER IS COMING.

BY MARY HOWITT.

The clock is on the stroke of six,
The father's work is done;
Sweep up the hearth and mend the fire,
And put the kettle on!
The wild night-wind is blowing cold,
'Tis dreary crossing o'er the wold.

He's crossing o'er the wold apace,
He's stronger than the storm;
He does not feel the cold, not he,
His heart it is so warm.
For father's heart is stout and true,
As ever human bosom knew.

He makes all toil, all hardship light;
Would all men were the same,
So ready to be pleased, so kind,
So very slow to blame;
—Folks need not be unkind, austere,
For love hath readier will than fear!

And we'll do all that father likes,
His wishes are so few!
Would they were more! that every hour
Some wish of his I knew,
I'm sure it makes a happy day
When I can please him any way!

—I know he's coming by this sign,
The baby's almost wild;
See how he laughs, and crows, and stares,
Heaven bless the merry child;
His father's self in face and limb,
And father's heart is strong in him.

Hark! hark! I hear his footsteps now—
He's through the garden gate;
Run, little Bess, and ope the door,
And do not let him wait!
Shout, baby, shout, and clap thy hands,
For father on the threshold stands!

Bridges in Texas.

The following story may have been told before, but it is nevertheless a good one if it has been told a thousand times.

A traveller journeying through Texas on foot came to a creek which was swolen by the rain, and running like a "mill tail," as the saying is. A floating log, made fast by a grape vine to either bank, was the only think in the shape of a bridge he could discover, and the swift current was running on either side of this. Two hours, hard labor, in bringing sticks and brush, served to form a frail raft by which he could reach one end of the log, which sunk and tottled as he placed his foot upon it. The traveller, however, after rolling off into the water twice, was finally enabled to 'coon' himself to the other end of the log on all fours; but new difficulties now beset him, for he was still not across, and a raging current was between him and the bank. A violent leap and lunge however, enabled him to reach and seize the grape vine, and with the aid of this, and much scrambling, splashing and floundering, he finally found himself on dry land on the opposite side, completely exhausted by his forenoon's work. He shook the water from his ears, spouted the water from his mouth, and while resting himself after his exertions, noticed a slip of paper stuck upon a stake close by. Upon examining the paper, he found written upon it in a round bold hand. the following emphatic warning: "One Dollar fine for crossing this bridge faster than a walk."

Anti-Celibacy.

Dr. Baird, in his lecture on Thursday evening, mentioned a singular fact concerning the Greek Church, viz: that the priests are to be required to be married men, and whenever a wife dies the priestly office ceases until he is married again. They claim authority for this in the scriptures, which read, "A bishop must be blameless, the husband of one wife." In the Armenian church this rule is extended so as to require that a priest shall also be the father of one child.

The Working Estate.

Smith, in his "Wealth of Nations," says that "the patrimony of a poor man lies in the strength and dexterity of his hands; and to hinder him from employing this strength and dexterity in what manner he thinks proper, without injury to his neighbor, is a violation of his sacred property."

Fireproof Cement.

A large basin of valuable cement has been discovered in Sharon, Medina Co, Ohio, and after undergoing the most thorough test, has been pronounced of great value for cementing roofs of buildings, steamboat docks, &c. The mine itself is one of the most singular depositories to be found. It seems as if it were poured into a large sandstone basin, covering some four acres, is found at the depth of twenty feet, presents an even level surface, is about five feet thick, and when dug out is no harder than tallow, and is entirely free from dirt and other impurities. An exposure of two weeks to the air, changes the cement to stone so hard that it is difficult to grind. In preparing it the cement is first ground when green, and after it has hardened it is ground again and remains in a powdered state until mixed with oil for use. When applied to roofs, it becomes hard and durable as slate and is a better fire-proof The roof presents the appearance of fine slate and is in no way affected by the weather. A specimen of the cement that has been on wood nine months, has been exhibited to the editor of the Cleveland Herald, which adheres closely, is as hard as the slates used in schools, shews pencil marks equally as well, and has the grit of a fine hone. The cost is small, being three dollars per hundred weight, which with the same amount of oil is sufficient to cover 1200 square feet.

Nutritious Value of Bones.

It would be well, if some good cook, acquainted with a little chemisty, would make some experiments upon the cookery of bone, which might be made to yield many soups and other palatable and nutritious dishes Professor Brand observes that "bone constitutes upon an average a fifth part of the weight of an animal, and one third of the weight of bone may be reckoned as good substantial food. The weight of butcher's meat consumed in London annually is supposed to be 172,000,000 pounds, including 35,000,00 lbs. of bone, which would yield 21,000,000 pounds of dry gelatine, or real nutrative matter, which, at present, is so far wasted as not to be applied to the direct support of human life. The bones of pork, game, poultry, and fish, not included in this statement, must also be of great amount. From all or any of these, an excellent dry gelatine, or portable soup, might be prepared and sold for about 2s. per pound, equivalent to three or four times its weight of raw meat."

A Strange People.

A group of five African dwarfs, of the tribe of *Bosjesmans*, or 'bush people,' were recently exhibited at the Egyptian Hall, in Piccadilly—and are the most curious of all the human curiosities that in an age bounding in such importations have solicited the attention of the sight-seers or scientific inquirers of the metropolis. They are of the very lowest type of humanity—little above the monkey-tribe—and which habits and propensities scarcely distinguishing them from the brutes. In the very midst of an overdone civilization, is the natural man caught in his very lowest stage of development; and the moral philosopher may speculate usefully on the analogies between the brute whom civilization in its excesses *makes*, and those who are so for want of it. On the first introduction of these dwarfs to an English public. Dr. Knox lectured on their nature, properties, and habits, at Exeter Hall, and in there present exhibition room they exhibit such feats of activity and methods of warfare as grow in the 'bush,' and are gathered by pigmies.

Curiosities of the West.

A gentleman who has been traveling through the Western country, writes of what he has seen, and says:

"I have seen many other great and amazing things—among which are soil from 20 to 30 feet in depth—a Kentuckian 7 feet 10 inches high—a cat-fish weighing 100 pounds—perch 15 lbs.—Five hundred bushels of strawberries in one day, many of which were one inch in diameter, trees 27 feet in circumference; prarie flies nearly as large as humming-birds, and musquitoes about the size of yellow wasps.

The remains of a large coral beef, with gigantic branches of a beautiful arborescent form, have been found in the Valley of the Mississippi.

Water.

Water maintains its own inhabitants; is the universal nourisher of plants, and through them, of terrestrial animals; it is the basis of their juices and fluids; it dilutes their food, quenches thirst, floats heavy burdens. The purity of this element claims our admiration. Had the sea been filled, or the rivers flowed, with milk or wine, fish, constituted as they are, must have died: plants would have withered, and the animals that feed upon plants must have perished. Its insipidity, though a negative quality, renders it the best of all menstruum. Having no taste of its own, it becomes the pure vehicle of every other. Had there been any taste in water it would have infected every thing we eat and drink with an unfortunate repetition of the same flavor. Observe, too, the round which water travels—From the sea are exhaled vapors which form the clouds; these descend in showers which supply springs; these again become rivers which feed the ocean; so that there is an incessant circulation of the same fluid, and probably not a single drop more or less now than there was at the creation. Water, however, could not perform its office to the earth without air, nor exist as water without fire, for without heat all fluids would be frozen, and the ocean become a quarry of ice.

Creatures with Thousands of Eyes.

What would be thought of a quadrupid whose head, with the exception of the mouth and place of juncture with the neck, was covered by two enormous masses of eyes, numbering upwards of 12,000 in each mass Yet such is the condition of the organs of vision in the dragon-fly. In the common bee the same structure is not less apparent. The fiery eyes of many Gad-flies (*Tabani*), which present vivid bands of purple and green, are composed of similar lenses, and each eye contains nearly seven thousand. The ant has 50 lenses: the house-fly 4,000; while above 17,000 have been counted in the eye of a butterfly, and more than 25,000 in that of a species of beetle.—*Patterson's Introduction to Zoology.*

The Cambridge Telescope.

The new Telescope at the Cambridge Observatory is found to have a great power in collecting light, and therefore its performance on minute stars, &c., is very satisfactory. Six of the satelites of Saturn have been seen through it when the twilight was strong enough to permit one to read, and the distance and angle of opposition of the two stars, which together in common telescopes make the small star of the beautiful Gamma Andromedæ, have been measured when the sun was shining on the end of the telescope

Singular Phenomenon.

At the mouth of the Rio Grande a short time since the waves washed heaps of dead fish ashore, in numbers so great as to literally cover the beach. They were of all sizes and descriptions, and emitted so strong an odor of sulphur as to afflict all the denizens of the mouth with a cough. Some days before this unusual occurrence, it is said a Mexican woman predicted that the phenomenon would take place. As for the prophecy we will not vouch, but the fish part of the story is "true as preaching." It is supposed that by some volcanic action of the earth, the sulphuric fumes escaped and destroyed the piscatory inhabitants of that part of the Gulf.

Value of the Hoofs and Horns of Cattle.

The hoofs and horns of a hundred head of cattle are daily consumed in Campsie Alum Works, Scotland, in the manufacture of that beautiful yellow salt, prussiate of pot-ash, which Mr Macintosh introduced among the calico-printers, who use it extensively to produce very showy blues and greens, It is prepared by burning the hoofs and horns in iron pots, along with potash and a requisite quantity of iron. The residue, after the combustion, is laxiviated with water, and, when the solution is sufficiently concentrated, the prussiate of potash crystalizes.

Lead Pipes in Cisterns.

All endeavors to protect lead from the action of water by placing it in contact with zinc, have signally failed, after a number of experiments by Professor Lolly, of the Royal Institution.

A Novelty in Sculpture.

The London Spectator, in describing a piece of statuary which has been exhibited in that city, the work of Raffaelle Monti—speaks of the wonderful execution of the design as follows:—The effigy of a veiled Vestal tending the everlasting flame, is a curiosity in sculpture—a feat of art. The figure is the size of life, it is clothed in a robe, and a veil thrown over the head envelopes the face, shoulders, and part of the arms; this veil is transparent. Not merely do you discern the covered forms where they actually swell out and touch the veil, but you think you can see through the veil underneath, the full and delicately finished features of a most beautiful face; you can detect the retreating curves of the profile and the swelling forms of the lips, with a space between that softly but crisply round flesh and the covering gauze. You are deceived. Working in the transparency of the marble, with cunning skill the sculptor has so arranged the thinness and thickness of his material, that the refracted light suggests the forms beneath, which are not *carved*. The artist has chisled the outward form of the veil, and in doing so has *planted* the veiled face in the light and shade glancing through the marble. He calls it "uno scherzo," and it is so; but it is much more—it is a very beautiful figure.

Curious Tenure.

A law contest is expected to be commenced shortly arising from the stoppage of the following custom at the parish church as Caistor, in England. For many years it has been the custom in that parish church to have a gad whip, with a purse tied to its lash containing half-a-crown, flourished over the pastors head during the service every Palm Sunday, by a man from Broughton. This custom, however ridiculous, we understand is obliged to be performed, or the church would loose an estate, which is left on condition that the same shall be at all times kept up on Palm Sunday. Several influential gentlemen, have tried to prevent the gad being cracked, but finding it could not be legally laid side, they have withdrawn all opposition. However, last Palm Sunday the gad was there and the man from Broughton, but the exhibition was stopped through the interference of an individual, and the question now is, has not the church forfeited the estate.

A Snake Story.

It is stated in a number of papers that a young lady of Philadelphia, the daughter of a bank officer, when going to bed one night, was about closing the shutter, when she was horified by laying her hand on an immense snake, which with expanded jaws was peering into the apartment, sacred to maiden privacy and "meditation fancy free." Dreadfully alarmed she rushed down stairs, alarmed her parents, raised the hue and cry, and a number of persons, armed with all the implements known and described in an indictment for an assault and battery, went to attack the monster. One of the blows knocked him from the window sill and he tumbled down through the branches of a grape vine into the yard. His pursuers followed and soon completed the work of death. It proved to be an anaconda 6 or 7 feet long and some six inches in circumference. Hardly had he been killed when a neighbor came rushing in breathless to reclaim his pet! But it was too late, and nothing now remains but his skin to grace some private collection or public museum. An anaconda hunt is not a subject of every day occurrence in these latitudes, and of course it has been the excitement of a day.

Strange Discovery.

Lately, in pulling down an old church at Aia in Norway, an oblong box was found containing the skeletons of a man and woman, with about 50 rods of hard wood lying between them. On the cover was a brass plate with the following inscription: "In this coffin repose the remains of a man and woman, who, having lived together in concubinage, were, for their ill-conduct, beaten to death. October 4, 1404." It appears, from an examination of the state of the law in Norway in the beginning of the 15th century, that the above named crime was at that period punished by death from castigation.

© 1847 SCIENTIFIC AMERICIAN, INC

NEW INVENTIONS.

New Stave Dressing Machine.

Mr. H. Law, of Wilmington, N. C., has sent us an account of a new Stave Machine, which appears to be a most important invention, As we hope to be able to give a description and engraving in the course of a week or two, we shall not say more at this time, than that it is a self-feeder and accommodates itself to all the crooks and windings of the most perverse split stave. Its construction in many respects is different from Mr. Judson's, published some time ago. Measures are in progress to secure a patent.

Iron Carriage Wheel.

This invention of Mr. Ira Holmes of New York, is a carriage wheel made entirely of iron. There is a double row of slim iron spokes with counter-sunk heads diverging alternately from the outer and inner rim of the hub to the felloe, where they are also counter sunk and effectually fastened—the spokes thus drawing both ways, and throwing as much of the weight of the carriage upon the upper as upon the lower part of the wheel The principle is that of an arch. Should the iron felloe break, which is scarcely possible, the wheel under ordinary circumstances could not be made to fall to pieces. The burthen which a very slight wheel thus constructed is capable of bearing, is immense. It has an exceedingly light and graceful appearance, is not liable to get out of order, and we are informed can be purchased at about half the cost of the ordinary wooden wheel.

Smoke Consuner.

In the New England Screw Factory of D. Griffin & Co., Providence, R. I., there has been erected a furnace upon a new plan, calculated to make an immense saving in the consumption of fuel. The principle is in the consumption of the smoke of gases, in which form so great a portion of the fuel in the ordinary furnaces pass off This is effected by the substitution of an artificial for the natural draft, by which the whole heat is so completely confined under the boilers, and expended in the generation of steam, that scarcely a perceptible amount escapes, and the hand can be held in the chimney without any unpleasant sensation of heat. The high and expensive chimnies now in use are not required by this plan, and the cost of new furnaces is considerably reduced, while the application of the principle to old furnaces is easy and cheap.

Coupling for Railroad Cars.

Mr. A. G. Heckrotte, of Cumberland, Md., has invented new car couplings, which have been tried on the Baltimore and Ohio Railroad with entire success. The machine consists of four pieces in addition to the ordinary coupling box, viz. a flat roller, a tumbler similar to the tumbler of a gun lock, a dog, and a spring, and can be attached to any kind of a car, with or without a box to contain the machinery. The whole is made of cast iron, excepthe spring, and need not exceed in weight one hundred pounds. It is self-acting, so that any two cars coming together on the road will couple without the aid of a hand, thereby avoiding the great danger to life and limb attendant on the ordinary mode of coupling.

The machine admits of motion or play sufficient for any curve or angle of switch; but so soon as the locomotive or any car, assumes a greater angle than the curve of the road or switch, by running off the track, or otherwise, the spring is acted upon, and the coupling instantly detaches all the cars behind it. Any car, or number of cars can be detached at any moment, by a simple action of the hand or foot on the spring, without stopping or impeding the velocity of the locomotive or cars in advance of it. The expense of one of these machines with or without a cast iron box will be from six to ten dollars.

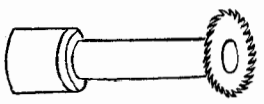
Improvement in Locomotives.

A correspondent of the Boston Transcript, suggests the substitution of an octave or so of musical pipes, in place of the hideous steam whistle. The engineer might then entertain the passengers and the surrounding country with favorite airs. "Old Dan Tucker" is suggested for road crossings and passage through populated districts, on account of the appropriateness of the chorus, "get out de way."

MECHANICAL MANIPULATION.

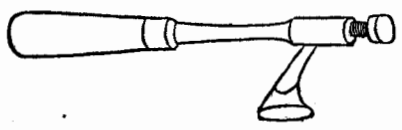
Lathe Chucks for very small Saws.

Circular saws not exceeding one or two inches in diameter, are occasionally mounted on lathe chucks, similar to that represented in the annexed figure, which is not only the



most simple, but probably one of the earliest modes in which the circular saw was used.—The chuck should be of moderate length, with a tenon to fit the hole in the saw, and a central screw or nut to fit the same, as represented. Opticians use this mode for the small thin saws with which they cut the notches in the tubes serving as springs in pocket telescopes. Carvers in ivory and similar materials employ small but thick saws, the edges of which are round, angular, or other sections. In each art the objects are mostly applied by the hands alone.

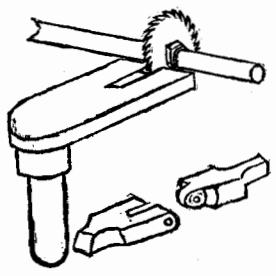
For cutting the notches in the heads of screws for mechanical construction, thick saws are similarly employed. The screw is held in a socket, as here figured, the end of which is tapped to receive the thread of the screw, and



in cutting the notch, the socket is supported an inch or more from its extremity, upon the edge of the rest for the turning tool, and the socket is wriggled up and down as a lever, to make the bottom of the notch tolerably straight instead of concave.

The gas burners denominated as bats-wing burners have a narrow slit through which the gas issues; these are cut in a similar manner by thin circular saws with a screw cutter or tap, as in making the teeth of a worm wheel, but the cutter should for the present case have one side of the thread perpendicular, to produce saw teeth of the customary form.

In cutting the knuckles for tenons for joints, the work is usually supported on a small iron platform, the surface of which is



horizontal, with a notch to receive the saw, and a cylindrical stem to adapt the platform to the bed of the common rest. The platform is fixed a little below the axis, to place the knuckle exactly central to the saw, so as to make the notches equally deep on both sides; and if the surface of the platform is parallel with the axis of the spindle, the notch is sure to be perpendicular or square to the side of the work.

Sometimes two saws are used upon the same chuck or spindle, to ensure parallelism in the sides of the middle piece or tenon; and similar methods are commonly used in sawing, notching and drilling the small wood mechanism of piano fortes. For some of these works, especially those in metal, the saws are not always mounted on lathe chucks, but occasionally on small spindles.

We have at our office a beautiful model of a splendid improvement in the drilling lathe, invented by James Hanley, Esq., Patent Harp maker, 169 Fulton street, which we will notice more at length next week.

(To be continued.)

Spark Arresters.

We frequently see accounts of Spark Arresters being invented. We would not notice this, were it not to correct opinion regarding the absence of such an invention. Spark Arresters for locomotives have been manufactured for a number of years in Philadelphia.—We understand they are very extensively used on the Southern Railroads on which cotton is transported, being considered a certain preventive from fire by sparks.

Percussion Cap Machine.

We perceive by the Washington papers that one of these machines have been put in operation at the Navy Yard at that city. This machine is the invention of Mr. R. M Bouton, of Watervliet, or rather West Troy, N. Y., where we have seen it in operation, at the Arsenal there. Its wonderful powers prove it to be one of the greatest triumphs of mechanical genius of the age. A strip of copper is placed in the feeder, then a single revolution cuts out a portion of the copper in the shape of a star; by a sliding plate the star is brought under a die, which shapes and polishes the cap, then a slight motion of a spring throws the cap into a tube, which conveys it to a drawer below. Every revolution of the wheel, which is propelled by steam, makes a cap ready to receive the explosive composition. If not supplied by copper, it stops itself. Upwards of sixty caps are made in a minute, and nearly forty thousand could be made with ease in ten hours. This invention must be productive of great advantages as well as saving an immense expense to the government. Such is the facility afforded by it of making superior caps, possessing all their explosive properties even when they have remained some time under water, that no recent order has been given for the fabrication of fire arms with flint locks.

Street Sweeping Machine.

A Mr. Whitworth has invented a machine for sweeping the streets of London. It is fixed on a cart drawn by one horse and attended by one man. It has on one of the wheels a toothed wheel working into a pinion which gives motion to a drum over which pass two endless chains, passing around also another drum, which is at the lower extremity of a light frame suspended at the tail of the machine, forming an incline plane depending from the drum frame. These endless chains carry a series of broad brushes formed of Indian rush, very elastic and durable; they travel at a velocity depending on the speed of the horse and sweeping on the ground with a force which is regulated by a coiled spiral spring carrying the dirt up the inclined plane into the cart. Such a machine would be invaluable for sweeping the streets of New York.

Magic Carriage Step.

A beautiful carriage step has been invented by Mr. D. Davis, of Wigmore street, London, called the Alhektobathron (a Greek word signifying "a step not required to be touched by the hand.") We like the Saxon better, self-acting step is the best name. These steps are constructed to be folded up beneath the body of the carriage out of the way, so neatly made as to be invisible and well protected from dirt. From this snug depository the steps are projected by the act of opening the carriage door, the shutting of which returns them again to their natural place. This is undoubtedly a valuable appendage to every description of pleasure carriage. The steps are moved by a spring acted upon by the door of the carriage. We expect to hear of some of our carriage makers adopting this step soon.

Barrel Making at Oswego.

Barrel making forms no inconsiderable item of the mechanical business of Oswego and vicinity. Probably from 60,000 to 80,000 barrels will be required to supply the Oswego mills this year; and the amount of money that will be paid out for this article alone will not fall much short of $250,000. The number of workmen employed is of course very large.

The application of machinery to barrel making, within the last few years, has been very successfully undertaken. In one shop staves are cut out and dressed by machinery propelled by a steam engine. The staves are cut out from the block at the rate of 8000 a day. The steaming process is done by the steam from the engine. After the staves are cut they are sawed by two buzz saws, all of one length, and then dressed and jointed in a very expeditious manner on a large wheel, into which knives are inserted. The stave is then fit for use. In another shop the barrels are put together. One establishment turns out from one thousand to fifteen hundred barrels weekly, and gives employment to about thirty-five workmen.

Lighthouse Light.

The plans adopted for illuminating the new lighthouse at the port of Havana, Cuba, are very ingenious and beautiful. A great lamp, placed in the centre of the lenses and reflectors, is supported by a hollow pillar of bronze seven feet two inches high, having, below, a receptacle for the oil, and a set of pumps for raising it. These pumps are worked by machinery similar to that of a clock, the moving weight being contained within the pillar, and are capable of raising four times the quantity of oil which the burners require; from which it follows not only that the flame is maintained with all possible brilliancy, but also that the superfluous oil which flows over the exterior surface of the tubes, and falls back into the cistern, cools the points of the tubes, which might otherwise be fused by the intensity of the heat. In order to increase the watchfulness of those who have the care of the light, it is furnished with alarm bells.—The escapement of this machinery is connected with one end of a lever, and at the other is suspended a vase with a small hole in the bottom. This vessel is so placed as to receive the superfluous oil from the burners, and while full, it sustains the counterpoise; but as soon as it begins to vary, on account of a deficiency of oil, the lever loosens the movement of the alarm apparatus, which gives notice of the irregularity. A first class light has three lamps, so that if one of them shall be out of order, there are still two fit for use in good condition, and the light is constantly main--ained.

Vulcanized India Rubber.

Mr. Brunell, the great engineer, has made a number of successful experiments with Vulcanized India Rubber, the same we suppose as invented here by the ingenious Goodyear. A small piece half an inch thick and two inches square was subjected to a two feet fall of Nasmyth's steam hammer weighing five tons, without injuring it, and a piece two inches thick was passed repeatedly between rollers only three-sixteenths of an inch apart, when it always resumed its form and thickness perfectly. It is excellent for buffer springs, and a great number of engineering purposes. It is now used for steam, gas, and water pipes, forming a perfect joint. Every hour some fresh application of this substance is discovered and no known substance could be used as a substitute for it. It is made by Goodyear into a thousand forms and used for innumerable purposes. There is one thing encouraging in its extensive application, viz. its great abundance. It seems from recent discoveries that there is a sufficiency of it in the forests of Assam, in the East Indies, to supply the whole world. It also grows in great abundance both in the West Indies and South America.

On the Construction of Chimneys.

In constructing chimneys, the builder should bear in mind that the facility for the passage of air through a funnel depends entirely upon his labor in its formation. The more direct the funnel, the more regular in its size, and the smoother its surface, the more perfect will be the draft. The greater length you add to a funnel by giving it abrupt turns or "breaks" (as they are sometimes called), the less usetul it is for the purpose for which it is designed. A funnel 8 inches square, made perfectly smooth and even in its inner surface, and purpendicular in its direction, will conduct a stronger draft than twice the size which is irregular in its form, with a rough surface, and having abrupt turns. A seperate funnel, for each room, should be carried all the way up the chimney; and if this is not done, the area of each funnel should equal in measurement that of all the flues leading into it. A chimney in a connical form, with a gradual increase of area as it is carried up, will be much more regular in its draft at the apex than that of the ordinary construction, where the outlet of the funnel is smaller than the bottom or inlet. The most prominent difficulty in the draft of chimneys is occasioned by discrepances in the formation of the funnel.

Æolian Attachment.

We have been informed that the patent right of Coleman's attachment has been set aside.

© 1847 SCIENTIFIC AMERICAN, INC

NEW YORK, AUGUST 21, 1847.

The Utility and Pleasures of Science.

The utility and pleasures of science are not fully appreciated by the mass of human society. The progress of human knowledge has accomplished within a century revolutions in the character and condition of the human race so beautiful and sublime as to excite in every observing mind feelings mingled with the deepest admiration and astonishment. No age has illustrated so strongly as the present the empire of mind over matter—and the ability of man to rise with the resources of his own intellect above the obstacles with which nature has surrounded him. By the aid of his own inventive genius and the ten thousand discoveries already made, he is rising rapidly to his proper sphere of intelligence, virtue and morality. In evidence of the improved condition of the present age over ages that have passed from the face of the globe to an endless eternity. We will look at the great discoveries and improvements in the arts and sciences and the different branches of industry. It is a happy privilege we enjoy of living in an age, which for its inventions and discoveries, its improvement in intelligence and virtue, stands without a rival in the history of the world. View the rapid movements going on as if impelled by some living instinct, in the social, political, intellectual and moral world :—towns and villages spring up almost in a day, railroads and canals cross the land in every direction, upon which, at a trifling expense is transported the products of one portion of the nation to, and exchanging them for the productions of any other portion, and conveying men of business over a space in a few hours that a few years since required as many days. Look at our splendid steamboats plying up and down our majestic rivers and skimming over our beautiful lakes with the rapidity of lightning, transporting merchandise as well as men of business to different parts of the world—look at our majestic steamships, ploughing the living ocean and bringing the old world within a few days journey of the new—view all these and then inquire whence these wonderful changes ? and the answer to your enquiry will be—these are the results of science, science reduced to practice. Look again at our manufactories of every description—cotton, woolen, silk, paper, stone, earthen, glass and iron, everywhere scattered like the leaves of the forest—go into their spacious apartments and examine the beautiful, simple and complex machinery performing with the greatest exactness every imaginable operation—and you view with astonishment the rapidity with which the crude products of nature are converted into all the various articles of merchandise which contribute so vastly to our convenience and happiness. We are tempted again to enquire, whence all this combination of machinery, those fabrics so beautiful, those articles of merchandise, this variety of household furniture and implements of husbandry, all so beautifully constructed ? and your answer will be—these too, are the result of Science developed by her ingenious sons, the Arts. Science like an accomplished teacher, has the oversight of every mechanic's shop, every manufacturing establishment, every steam engine, every ship at sea—collects, classifies and arranges every production of nature in systematic order—she takes the farmer into his fields, analyzes his soils, describes its properties and the products it is best adapted to grow—shows him how to mix his soils with nutricious substances so as to insure a rich return for the faithful sweat of his brow. Physical science has a direct moralising influence upon society. Who can go into the open atmosphere in a clear, cloudless night and view the blue vault of heaven, and contemplate the innumerable shining orbs that roll through infinite space, without feeling a moral influence move over his whole nature like the gentle breeze which moves over the rose that blushes by the way side. Science has an elevating, refining and purifying influence upon man, it developes, enlarges and strengthens the power of the mind, it sets free the springs of the intellect and puts the whole machine in active motion. But we must now pass on and notice some of the many pleasures of science, having thus shown some of its practical uses. Man is a physical and intellectual being—he has physical and intellectual cravings, an appetite which must be satisfied, and science is adapted to meet the desires, the cravings of an intellectual and immortal mind. The works of nature which embrace the whole foundation of scientific knowledge, affords the most ample, the most most sublime field for the mind to explore.—Go where you will—turn to the blue vault above or to the earth upon which we tread, new and interesting objects crowd in on the mind, the universe from the infinity of shining worlds down to the smallest insect that floats upon the air we breathe or inhabits the water we drink, by the aid of science is laid open to the mind in all its forms and tints of color, and is enough to fill to overflowing the broadest, deepest, noblest mind that ever existed.—Of all the discoveries yet made by man which has any tendency to ameliorate the condition of the human race, none are as noble in their character or happier in their results than those which have facilitated the dissemination of scientific knowledge. The time has been when Book knowledge was a luxury in which the rich alone could indulge, while the other parts of society labored in the deepest depths of ignorance, superstition and suffering, Happily the present age has witnessed a complete revolution in literature—the improvements which have been made in every branch of book manufacture have very greatly diminished their price, while it has extended their demand. The reading community was then the learned and refined ; now it is the whole race, the light of knowledge which so long concentrated upon rank and wealth now shines upon the whole community, arousing the dormant energies of numberless minds diffusing light and life, health and happiness throughout the whole universe, Under this new spirit of intelligence thrones have tottered to the ground, superstition has fled and oppression has shrunk beneath its own influence. There is no principle of human nature more powerful than the desire for knowledge : universal experience fully attests this fact. Pleasures of an exalted and refined character are the invariable accompaniment of intellectual pursuits—in the original constitution of the mind we find a capacity for high intellectual attainments. If then, its great Author intended that it should be susceptible of indefinite expansion and improvement, we cannot doubt that the same benificent Being has supplied a fountain pure and inexhaustible from which to satisfy the desire of knowledge which is implanted in us. And where must we look for this fountain but to the great store-house of nature—the innumerable and diversified objects there presented to our view give evidence of infinite skill and intelligent design in their adaptation to each other and to the nature of man-

Grand Scheme.

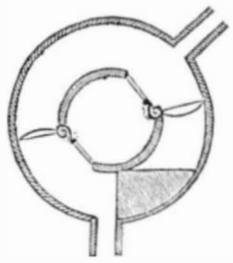
Mr. Wheaton, late minister to Berlin, in a despatch sent to Mr. Buchanan forcibly treats of grand enterprises having for the object the union of the Mediterranean and Red Seas, through the Isthmus of Suez, and that of the Atlantic and Pacific Oceans by the way of Panama, Nicaragua, or Tehuantepec. At the first view it would seem that the Canal of Suez, and that of the American Isthmus, were subjects widely apart and wholly disconnected ; but in the grand and comprehensive view taken by Mr. Wheaton, they are treated as parts only of one entire system, as links in an unbroken chain of commercial intercourse, that is to concentrate within the Northern Hemisphere the trade of the globe.

New Beacon Light at St. Joseph.

The new Beacon Light authorized to be built at St. Joseph Michigan, by a law of the late Congress, has been erected, and is now lighted for the benefit of the shipping on the lakes. It is situated on the South Pier, within forty feet of the end.

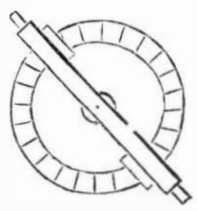
MECHANICAL MOVEMENTS.

Rotary Steam Engine.



Perhaps there is no kind of machine that has occupied such a prominent place in the universal mind of invention as the Rotary Engine. The first rotary engine we believe was built by James Watt, but he early laid it aside and wisely, for his own pecuniary benefit at least. No machine that has met so much attention has been so unsuccessful for purposes of utility. Circular motion is the most desirable and it appears to be the most natural, although it is self-apparent that for a great number of purposes there are other motions far superior to the circular, yet because the parallel engine has to drive a crank, too many, without thinking of the great beauty and ease of driving it by reciprocating motion have unwisely spent much time to supersede it, but as yet without establishing a general substitute. The above cut is a section of a rotary steam engine, as simple, if not more so, than many for which patents have been secured.—The lower aperture shows the entrance, and the upper the exit of the steam either to a condenser, or not. On the right of the steam pipe, (entrance) is a stop which fits accurately to the revolving central part by which the two valves on which the steam acts to turn the center are closed when passing ; these valves must fit accurately when open to the external surface of the cylinder which forms the exterior of the machine. A rotary engine was applied last year to propel one of the steam ships in the British Navy, but it was a complete failure. A gentleman has called on us this week and stated that he had a neat rotary engine in successful operation in Philadelphia. It has no valves and is very simple. We hope to be able to give a full description with an engraving, in a few weeks.

Clock Work.



This is a plan of the old crown wheel escapement, in which the perpendicular sides of the ratchet teeth precede in the revolution of the wheel and alternately act on the two pallets which are carried on the verge which passes across the crown wheel. These pallets are set at an angle of 90°, so that when one pallet is impelled by one tooth of the wheel and has escaped, the other pallet comes in contact with a tooth of the wheel on the opposite ; thus the motion of the wheel vibrates the pallets and the vibration of the pallets regulates the velocity of the wheel.

Coal for Steam Engines.

By the experiance of many years, it appears that the Cumberland bituminous coal is by far the best for the use of steam vessels. The Cunard steamers, it is well known, have relied, as far as they have been able, to obtain it, on the Cumberland coal for their return voyages to England, and they have found it equal in every respect to the best English or Scotch coals.

The exact adaption of this coal to use in steam engines, on account of its easy combustion, and its freedom from clinker, and from sulphur, will reccommend it to universal use, as soon as it can be obtained, in all outward bound steamers, while the English coal will be used in the return voyages. The same construction of furnaces and of furnace bars, will of course be adapted to both.

Never saw a Railroad.

Hon. Edward Bates, of Missouri, the President of the late Convention at Chicago, said he had *never seen a railroad !*

Longitude and the Electric Telegraph.

Experiments have lately been made between Jersey City, Philadelphia and Washington to determine the exact longitude of these different places. The plan of operation we learn to be the following : At 10 o'clock in the evening, ween the usual business of the Telegraph Co. is concluded, the three Observatories above named are put it communication with each other. They then correspond in the ordinary mode of telegraphing, to ascertain whether the arrangements are perfect, and the observers are all ready. The observer at Jersey City then gives warning to prepare for the transmission of clock signals. At the commencement of a minute by his clock, he strikes a key, (like the key of a piano,) and a click is heard simultaneously at Jersey City, Philadelphia and Washington. The observers at the three places record the time, each by his own clock.—In ten seconds, Jersey city again strikes the key ; a click is heard, and all record the time. At the expiration of another ten seconds, a third signal is given in the same manner, and so on, to the number of twenty signals. After a pause of one minute, Philadelphia repeats the same series of signals, and all three observers record the time. After a similar pause, Washington begins, and gives another series of twenty signals. Thus the three observers obtain sixty comparisons of their clocks, which ought to give their difference of time with almost perfect accuracy. This method is beautiful in theory, and apparently very simple, but a great many disappointments have been experienced in reducing it to practice.

Cast Iron Houses.

The Cincinnati Chronicle says : " We are informed by good authority that a block of three story buildings are to be erected in this city, the entire front to be of cast iron ! The plates for the same being already cast."

We hope that due warning will be taken by the falling of Gray's Mill in Manchester, which was almost entirely constructed of iron. Great prudence and skill is necessary in the right placing of iron posts and all iron uprights.—There is a tendency in all crystalized substances to expand and crash suddenly. Iron houses are undoubtedly an improvement, but let caution and skill be exercised in their erection, more especially in regard to top weight and expansion.

Steamer North America.

On Monday of last week, while the North America was on her trip from Albany to this city, the walking beam of the engine near the journal, broke off when at its highest elevation, falling with tremendous force, crushing everything in its descent and endangering the lives of the pilot and a number of passengers, several of whom had a narrow escape

This is another instance of the dreadful effects of the axles of the journals getting out of line. It appears to us that if Mr. Smith's invention was adopted, these accidents would not occur so often. There is just as much culpability in not adopting means for the prevention of such accidents by breakage, as there is in subjecting boilers to the test of every inch of pressure continually.

An omnibus has been started in St. Louis, two stories high. It carries sixty passengers.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

THE
SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

TERMS.—$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months.

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper for the same length of time

© 1847 SCIENTIFIC AMERICIAN, INC

Arithmetic.

Arithmetic is a science as well as an art; it is therefore possible for one well acquainted with the *properties* and *relations* of numbers when a question is proposed for solution, says the Ohio School Journal, not only to be able after two or three trials, to obtain the result by some arbitrary rule, but to see readily, if not at once, what operations are required, and then to perform them in the shortest number and to obtain the required result with the least possible number of figures. Hence it is well known to the observing that many of the processes required in the every day practice can be greatly abbreviated. The contractions in multiplication are numerous and important but most of them may be included in a few general classes, of which we name,

1. These based upon the decimal relations of numbers. Of these the most numerous are the multiplication by the aliquot parts of 10, 100, 100, &c., all of which are governed by one general rule, viz. annex one or more ciphers to the multiplicand and divide that result by the denominator of the common fraction denoting the aliquot part of 10, 100 or 1000, which the multiplier equals. Hence—

To multiply by

5, (1-2 of 10)	annex 1	cipher and divide by	2
3 1-3 1-3 of 10	"	" "	3
2 1-2 1-4 of 10	"	" "	4
1 1-4, 1-8 of 1 0	"	" "	8
50, 1-2 of 100	2	ciphers "	2
33 1-3, 1-3 of 100	"	" "	3
25, 1-4 of 100	"	" "	4
16 2-3, 1-6 of 100	"	" "	6
12 1-2, 1-8 of 100	"	" "	8

From these specimens the rule for multiplying by the aliquot parts of 1000, as 500, 333 1-3, 250, 166 2-3, 83 1-3, 62 1-2, can be easily formed. To multiply by 9, 99, or any number nines, annex to the multiplicand as many ciphers as there are nines in the multiplier and subtract the multiplicand from that result. The process of multiplying by eleven may also be shortened. To multiply by 15, annex a cipher to the multiplicand and add one half the multiplicand to that result.

Connecticut Genius.

In Connecticut alone, of all America, do they know how to make brass kettles. Two towns have become rich by the manufacture of wooden clocks, which are generally sold at a great profit. Visiting Hartford Co. you will find a gang of hands digging copper ore. The next village is supported by making axes. Reaching the neighborhood of the Talcott mountains, you find a village of 1500 inhabitants, sustained by weaving carpets; and a still larger one 15 miles further N. E. in the same employment. These villages are inhabited by Scotchmen, and have three Presbyterian churches. Further on a Shaker community raise garden seeds and make brooms. Hazard's powder mills come next. Then a growing village, where are made paper, various kinds of cloth, iron wire, card teeth and cards. Passing Hartford, you find a town of 3000 inhabitants, manufacturing all sorts of brass ware. In Tolland County you will find numerous cotton and woolen mills, turning out the diversified fabrics made from these materials—besides four or five silk factories, where *Italian* sewing silk and twist are manufactured. In Windham County are cotton manufactories—there being not less than twelve in the valley of a single stream within a space of 20 miles. In New London County India rubber is manufactured in various forms. In Norwich, cotton and woolen mills abound; one paper mill turns out $200,000 worth of paper a year.—Stonington and New London have grown rich by the whale fishery. Lyme and Saybrook furnish sea captains for the Liverpool packets. Meriden manufactures ivory ware; nearly 30 men are employed in working patent inkstands. Next you find a shop turning out axe helves—then a screw factory. On the banks of the river you come to a quarry of gneiss which splits with the facility of chesnut timber, whence great quantities have been transported to other parts of the Union and also to the West Indies. A quarry of red sand stone employs 300 Irishmen. A whole town near by, has been made rich by the manufacture of bells of all kinds, sleigh, horse, clock and cow bells included.

Printing in China.

The learned researches of M. Julien have led him to disinter in Chinese authors an invention of printing at an epoch far anterior to that when the same idea was germinating in Europe. It is not the process known of old, which consisted in reproducing proofs of a text engraved on wood or on stone; but it relates to a person who conceived the idea, about the year 1041 or 1048, of making use of characters, of moveable types, and bringing them together to compose a text in the manner it is done at the present day. This ingenious man belonged to the working class; he was a blacksmith named Pi-ching. It is surprising that Pi-ching, accustomed to work in metal, did not think of forming metallic characters. He made use of a fine and delicate clay, undoubtedly on account of the facility with which he was able to communicate to it the desired form, and when he had fashioned the types to his mind he baked them to give hardness to them. He moreover joined them and kept them together in frames of iron, as is done at the present day, and except the substitution of baked clay for metal, it may be said that the chinese laborer had laid down the first principles of the art of printing.

But it is no advantage to be before one's age in China, any more than in Europe. When Pi-ching was dead his types passed into the hands of his friends and heirs, who, far from making use of them, preserved them as precious relics. They returned to the ancient method of printing from engraved plates, not certainly on account of the imperfection of Pi-ching's method, but because this method lost all its advantages in being applied to the Chinese language, the capital fault, as is well known, of which is to call for the use of a considerable number of different characters. It was not until much later, about the 1662, the European missionaries, making use of the credit they enjoyed with the Emporer, Kangki, persuaded him to cause to be engraved two hundred and fifty thousand moveable copper types, and succeeded in naturalizing in China Pi-ching's invention.

A Bank Safe blown up and Robbed.

The Mechanics and Agricultural Banking Institution, in Woburn Centre was entered lately and the iron safe blown open and robbed of $3,000 in current bank bills. Of this $1,000 only belonged to the bank, the rest being deposited there for safe keeping. Valuable papers, worth several thousand dollars, were also stolen. The explosion did not awaken several persons who slept in the farther part of the building. The flash and explosion were witnessed by a man who was sitting up with a sick person in the neigeborhood. He supposed it to be thunder.—Among the notes which taken were $500 on the Boston Bank, and ten $50 on the Exchange Bank of Boston. The trunk, with all the contents, except the money, has been found in Medford, near the residence of the Hon. Peter C. Brooks. A young man always slept in the building, and had not been away a single night for five years, till that on which the robbery was committed, when he went into Boston to witness the performance of the Ravels.

Plowing in Ancient Peru.

The Peruvians had neither the iron ploughshare of the old world, nor had they animals for draught, which, indeed, where nowhere found in the new. The instrument which they used was a strong, sharp-pointed stake, traversed by a horizontal piece, ten or twelve inches from the point, on which the ploughman might set his foot and force it into the ground. Six or eight strong men were attached by ropes to the stake, and dragged it forcibly along—pulling together and keeping time as they moved by chanting their national songs, in which they were accompanied by the women, who followed in their train to break up the sods with their rakes. The mellow soil offered slight resistance, and the laborer. by long practice, acquired a dexterity which enabled him to turn up the ground to the requisite depth with astonishing facility. This substitute for the plough was but a clumsy contrivance; yet it was curious as the only specimen of the kind among the American aborigines, and was, perhaps, not much inferior to the wooden instrument introduced in its stead by the European conquerers.

Poisonous Bean.

The New Orleans National says that there grows in Mexico a small bean, called Pinon lello, pronounced Peno-leo which, when infused in milk and drank, causes a chronic disease that soon carries off its victims, they, the while, unconscious of the real cause, This bean, it is said, was used in Havana, many years ago, with considerable success in destroying the English. The Mexicans use a herb called the Huaco, pronounced wha-co, to relieve them from the poisonous effects of the pinon lello and the bite of poisonous reptiles, by chewing the weed and swallowing the extract. The extract is also used to put in the place of a bite of a poisonous reptile, and always with success. A Mexican never travels, if it can be avoided, without a small package of the huaco weed.

Information.

Dr. Franklin remarks that a man as often gets two dollars for the one he spends in informing his mind, as he does for a dollar he lays out in any other way. A man eats up a pound of sugar and it is gone, and the pleasure he has enjoyed is ended; but the information he gets from a newspaper is treasured up to be enjoyed anew, and to be used whenever occasion or inclination call for it. A newspaper is not the wisdom of one man or two men; it is the wisdom of the age, and of past ages too. A family without a newspaper is always half an age behind the times in general information; besides they can never think much nor find much to talk about. And then there are the little ones growing up in ignorance without any taste for reading. Who, then, would be without a newspaper?

Poverty.

Start not at the labor doom of honest poverty. To it we are indebted for the discovery of a new world: it made Franklin a Philosopher, Hogarth a painter, and Napoleon the conqueror of Europe.—The mightiest minds that ever astonished the civilized world, were nursed in the vale of poverty; that was their incentive to act, their stimulous to glory and immortality.—Pine not, then, at your lot, if you be poor and virtuous: a large fortune to a giddy youth is the most painful judgment an indulgent heaven can inflict upon man. The inordinate love of wealth, so fatally prevalent in modern times, when, with a great majority riches are a test of respectability, and cash a token of worth and virtue, a cloak to screen from crime—is worse than famine, more fatal than the fostering folds to the purple pestilence. Mourn not, then, that you are poor—push your faculties into a holier sphere, and reap an abundant store of mental gain in the extended field of an enlightened mind.

A Dog Story.

Some years ago, it was not uncommon in Connecticut to employ dogs as motive power to light machinery. A Mr. —— had a pair of dogs which he worked together, on a sort of a tread mill, to drive some machinery. After a while the motion of the machine was noticed from time to time to be considerably retarded. The tender would go to the treadmill, to see if the dogs were doing their duty. Everything would be going right. After a little time however, there would be another interruption—the speed of the machine would be considerably diminished; and so it continued, until the owner began to suspect that his dogs was playing some trick on him. He accordinnly set a watch where all the movements of the animals could be seen; and the mystery was soon explained. After the dogs had worked together for some time, one of them was seen to step off the tread-mill and seat himself where he could catch the first warning of any approaching footstep. After he had rested awhile, he took his place on the wheel again, and allowed his associate to relieve himself. And if during the resting process any noise was heard, as if some one approaching, the resting dog would immediately jump upon the wheel and go to work as usual. Thus the sagacious creatures had contrived to bear one another's burdens. And, had they only known a little more about mechanics, and kept one wheel in a little quicker motion, the trick might never have been detected.

Delaware, Lehigh, Schuylkill and Susquehannah Railroad Company.

The charter of this Railroad designed to connect the Coal and Iron fields of Pennsylvania with Easton, and from thence by Railroad over New Jersey to New York Bay, has been taken up by subscription of the Capital Stock required by the Charter, and is now in the course of organization.

A strong association of Capitalists, embracing citizens of Pennsylvania, New Jersey, New York, and Boston completed the subscription of Stock on Monday last.

The gentlemen interested in the New Jersey, Delaware, & Hud. Railroad are prominent in this movement; and connecting links are now formed from the coal and iron fields of this State, through Easton, across New Jersey, to New Brunswick or vicinity, and from thence to the Hudson River opposite New York.

By this route the coal and iron fields of the Lehigh and little Schuylkill regions may reach the water of New York Bay, by as short a line of transporttaion as now exists or can can be made to the tide waters of the Delaware River, from the Schuylkill region. We congratulate our fellow citizens on the prospect of this important avenue for their mineral riches.

Whaling Gun.

In reference to the *bomb lance*, which we noticed lately in the Scientific American, the Nantucket Enquirer says:

We saw yesterday at the store of Capt. E. W. Gardner, a very curious contrivance for killing whales. It is a short gun, weighing some twenty-five pounds—the stock being of solid brass—from which a harpoon is to be fired into the animal. The handle of the harpoon goes into the barrel of the gun about a foot, and a line is fastened to it—of course outside of the gun—by which the whale is to be held.

There is also a *bomb lance*, for the purpose of killing the animal. The instrument is loaded with powder, and a slow match is led from the magazine, through the handle, to the end of which goes in the gun. When the lance is fired into the whale, the slow match ignites; and in about half a minute the fire reaches the powder in the head of the instrument, which instantly explodes, killing the animal outright. At least this is what the article is intended to do.

The whole apparatus it certainly very ingenious; whether or not it is really an improvement on the present mode of killing whales, it is more than we are able to say. That is a question that must be settled by the whalemen themselves.

A useful Hint for Prosy Chairmen.

Mr. Sergeant Adams whose singularities and eccentricities occasionally produce much merriment in the court over which he presides, heard a case recently at the Middlesex sessions, in which a lad stole a piece of pudding from an eatinghouse-keeper's, in Clerkenwell. The evidence having been gone through, the learned judge thus summed up:—"Gentlemen of the jury, you have heard the case. Off goes the pudding; off goes the boy, off goes the woman. She captures him bolting down the lane, and here you have the boy, pudding, and woman standing before you. Gentlemen cansider your verdict." At the close of this lucid and satisfactory address, the jury turned to each other in the box, and were, soon in consultation. The impatient judge exclaimed, "Good God, gentlemen, what are you deliberating about?"—the case is clear enough?" This settled the poor jurymen at once; and turning around in alarm, they found the prisoner guilty. His love of pudding got him a month's imprisonment, with the pleasant prospect of a whipping by the gaolers at the end of the first fortnight.

Clouds and Light on the Crescent.

The Minaret of the Mosque of Sultan Bajazet, at Constantinople, was, a short time since, struck by lightning. The whole tower fell, and in doing so crushed two persons. Three times this year have mosques been struck by lightning in Constantinople. This has caused great alarm among the people, who, being superstitious, see in it the presage of misfortune for the Ottoman empire.

© 1847 SCIENTIFIC AMERICIAN, INC

TO CORRESPONDENTS.

"J. C. of Pa."—There was not the least reference in the article on Agrarianism to the National Reformers. It was only an anecdote striking off character. We would sincerely desire to see every industrious man with his snug little 100 acres, or even 50. A company of honest rural mechanics would, we think, make a very happy community.

"S. A. A. of New Rochelle."—To remove pitch from cloth soften it in butter and wash it off with soap. Grease remove with soap. Paint. by first rubbing the cloth between the fingers with turpentine and then wash with soap. There are a thousand nostrums for removing these things from apparel, but what we have recommended will be found the best. There is a duty paid upon all kinds of tobacco on entering England, but none upon the manufacture of it afterwards The right to manufacture is free to all.

"F. L. of Conn."—Kephart's Fruit Preserver is very highly spoken of. Ice houses are no way mysterious to build. We have seen one four stories high, built entirely of brick, with only 6 feet of underground cellar. A good ice house may be built by digging about 10 feet underground or under a bank, having a double covering of boards or shingles only. It must have a strata of sawdust between the covers (roofing.) The secret of Kepheart's is, a dry, cold chamber, it being surrounded by ice. In regard to horse power machines, it is scarcely possible for us to say which is the best. No less than five patents were taken out for horse powers last year. Mr. O. Badger, of Fly Creek, Otsego county, in this state makes good machines and also Mr. Fitzgerald of this city.

"J. H. W. of S. C."—One of Twaddle's hydrometer's can be bought for $1,75 and a thermometer for measuring as high as 480° for $2,25. For these sums we can send you the same according as you may direct.

"E. F. W. of Miss"—The Gutta Percha has not been introduced here yet. We shall announce the information where it can be had and on what terms, as soon as any arrives here.

"N. G. S. of Mass."—We shall answer you by mail.

"H. H. of East Bloomfield, N. Y"—You will probably hear from the Patent Office in about 6 weeks. They are in arrears with their business 5 or 6 months in consequence of the unusual activity of inventors.

"L. & J., Greene Co., Ohio."—Your drawings are received. costing us 25 cents postage. We should advise you to make your appeal through the same parties you first employed to do your business. They know more of the affair than we do. The drawings are preserved for you.

"Z. P. of New York."—You must send us notice of the exact time when your Dynameter is to be tested.

"A. A D, A. of New York."—Your description of the Seed Plough is too indefinite. You have only described its different parts, but not how it operates. A more full description is necessary. We have seen a revolving seed plough, but it did not answer all the purposes claimed by yours, nor was it so simple.

"B. W. of Pa."—We have answered you by mail.

"S. L. Denny."—Your article, "the utility and pleasures of science," must be read with interest.

Mechanics Mutual Protection.

We have received a letter from H. M. Warren, P. S. P., of Batavia, correcting the published mistake of the place when the next A. C. of United States is to be held. It is to be held at Batavia, not Geneva—our informant's mistake, and he was at Buffalo. Br. Warren enquires if the Grand Secretary's report is not yet published. We say that it is not his fault, but that of a resolution offered at the A. C. which demands him to make his report out as directed by the Constitution U. S. Experience may correct fallacies in legislation. Our Protections may now expect to get their reports after they have become musty, unless the G. S. pursues the mode adopted by us, but if he does not, no one can find fault with him. We are happy to hear from our old friends in Batavia. Our acquaintanceship has now ripened into friendship—they are men. And there is one P. M. whose intellectual brow we hope will soon be adorning the friendly circle of No. 13. Why not?

Officers of this Quarter:—Wm. McGinnis, S. P. No. 1 Lockport. B. Van Benthusen, S. P. No. 22 Albany. R. Green, S. P. No. 10 Troy. Thos. Yates, S. P. No. 13 Batavia. J. D. D. Wemple, S. P. No. 21 Albany.

Communications should be sent to the Senior Protectors. We should be happy to publish all the officers names, were it necessary. No. 22 is old No. 5, and late G. P., New York.

In answer to "A Delegate," in last week's paper, we must say that it is easy to find fault, more easy to be a novice out of power than in power, easier to ask than answer questions. All will yet be made right. In regard to what we stated in being interdicted from publishing the proceedings of the Annual Convention we made no allusion to any other person whatever, but spoke only of ourselves. No fault can be found with those who had not the knowledge of non-publication that we had.—We cannot conceive how any person could appropriate our remarks as personal. We wish to have no personal controversy—a generous controversy on scientific subjects, will always be profitable and pleasing.

R. MACFARLANE, P. G. S

New York.

Valuable Books.

The attention of our readers is called to the advertisement of Fowlers & Wells new publications in another column.

Daugerrian Establishment.

Gurney, of 189 Broadway, has the reputation of taking the best likenesses of any Daugerrian artist in the city. We advise all who like to look upon a beautiful picture, to call at his Gallery and examine for themselves his perfect specimens.

Patent Agency.

Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

Vol. 1 Scientific American.

A few sets of 30 Nos. each of Vol. 1, Scientific American, can be had at this office, price 50 cents. The complete sets of the last half of Vol. 1. have all been disposed of at the subscription price, and the numbers advertised above are not consecutive, but in fine order.

ADVERTISEMENTS.

☞ THIS paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the ollowing rates:

One square, of eight lines	one insertion,	$ 0 50
" " " "	two do.,	75
" " " "	three do.,	1 00
" " " "	one month,	1 25
" " " "	three do.,	3 75
" " " "	six do.,	7 50
" " " "	twelve do.,	15 00

TERMS:—CASH IN ADVANCE.

BOOKS! BOOKS!!

☞ We would inform those who are desirous of procuring the New Series of valuable and interesting publications now issuing by Messrs Fowlers & Wells, that we have made arrangements with them whereby we can furnish their works at Publishers' prices.

JUST ISSUED.

Matrimony—Hints on selection of companions - - - - Price 25 cents.
Fascination, or the Philosophy of Charming 40 cents
Woman—her education and influence - 40 cents.
Chemistry—its various new and novel applications - - - - - 20 cents.
Lectures on the Philosophy of Mesmerism 25 cents
Phrenological Almanac, per dozen, 50 cents.

The above works may all be sent by mail.

Address, post paid,

MUNN & CO., Publishers,
j17 Fulton street, N. Y.

GENERAL AGENTS
FOR THE SCIENTIFIC AMERICAN.

New York City,	GEO. DEXTER.
" "	WM. TAYLOR & Co.
Boston.	Messrs. HOTCHKISS & Co.
Philadelphia,	STOKES & BROTHER.
Boston,	Jordon & Wiley.

LOCAL AGENTS.

Albany,	PETER COOK.
Baltimore, Md.,	S. SANDS.
Cabotville, Mass.,	E. F. BROWN.
Concord, N. H.	RUFUS MERRELL.
Fall River, Mass.	POPE & CHACE
Hartford, Ct.,	E. H. BOWERS.
Lynn, Mass,	J. E. F. MARSH.
Middletown, Ct.,	WM. WOODWARD.
Norwich, Ct.,	SAFFORD & PARKS.
New Haven, Ct.,	E. DOWNES.
New Bedford, Mass.,	ROBINSON, PARSONS & Co.
Newark, N. J.,	J. L. AGENS.
Newark, N. J	Robert Kashaw.
Providence, R. I.,	H. & J. S. ROWE.
Rochester, N. Y.	D. M. DEWEY.
Springfield, Mass.,	WM. B. BROCKET.
Salem, Mass.,	L. CHANDLER.
Saco, Me.,	ISAAC CROOKER.
Troy, N. Y.,	A. SMITH.
Taunton, Mass.,	W. P. SEAVER.
Williamsburgh,	J. C. GANDER.
Dover, N. H.	D. L. NORRIS.

CITY CARRIERS.

CLARK SELLECK, SQUIRE SELLECK.

Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor.

THE NEW YORK
WEEKLY SUN.

A large and handsome newspaper, containing THIRTY-TWO COLUMNS of interesting reading matter, printed in clear type on fine paper, is published every week at the low price of

ONE DOLLAR A YEAR.

SINGLE COPIES THREE CENTS EACH.

Each number generally contains an engraving on some interesting subject—two or three interesting tales or sketches, each complete—several pieces of beautiful poetry—miscellaneous articles on various subjects—hints on domestic economy—agriculture—inventions—recipes—wit—humorous anecdotes—editorials, selected from the Daily Sun—news of the week—list of deaths and marriages—markets, foreign and domestic—arrivals and clearances—vessels up for foreign ports—prices current—a complete bank note list—list of passengers arrived and departed.

The Weekly Sun was established TEN YEARS AGO, since which time it has rapidly increased, until it has attained its present large circulation, and is now perhaps the best medium for country advertising which can be found. Advertisements inserted at a low rate.

Subscription ONE DOLLAR A YEAR, sent by mail to any part of the United States and the Canadas, by steamers and packets, to all parts of England, Scotland, Wales, Ireland, France, Germany, Spain, the West Indies and South America. Published at the office of the New York Sun, south-west corner of Fulton and Nassau streets. Letters from the country should be addressed, post paid, to

M. Y. BEACH & SONS,
1y Sun Office, New York.

SMITH'S
Improved Electric Machines.

☞ We have received a new lot of Smith's Magnetic Machines, which far surpass any we have ever before offered to the public. They are put up in much neater shape and better adapted to medical purposes than any that have ever been sold in this city previous to the recent improvements in these machines.

For particulars relative to the wonderful cures performed by these truly wonderful machines, we would refer you to the inventor, who has original letters from those cured, that he would be pleased to show at his office.

Price $12, neatly put up in mahogany cases, with a book of explanation to accompany.

Orders from any part of the United States, promptly attended to. Address

j3 tf MUNN & CO. (post paid) New York.

To Builders and Hardware Dealers.

☞ We would inform those who deal in or have occasion to use DOOR LATCHES in the construction of buildings, that we have just received a large lot of Mortice Latches, which we can furnish at a less price than the original cost to manufacture them. They are of a beautiful pattern and some of them of an entirely new style They may be had in any quantity, by application at this office. MUNN & CO. 128 Fulton st.

DAUGERRIAN GALLERY.
GURNEY'S
PREMIUM DAUGERRIAN GALLERY.
No. 189 Broadway, N. Y.

☞ Pictures taken at this establishment warranted to give satisfaction. j24

Engraving on Wood

NEATLY AND PROMPTLY EXECUTED AT the OFFICE OF THE SCIENTIFIC AMERICAN, 128 Fulton st, three doors from the Sun Office. Designs DRAWINGS of all kinds for PATENTS, &c. also made as above, at very low charges,

Lap-welded Wrought Iron Tubes
FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d26 28 Platt street, New York.

A LITERARY AND FAMILY PAPER.
THE YANKEE BLADE.

A Home Journal and Fireside Companion,

DEVOTED TO

LITERATURE, EDUCATION, MORALS, FUN, NEWS, &c.

Published every Saturday at $2 per annum

☞ This Literary and Family Journal having during the past six years, met with the most brilliant and unexpected success, numbering its subscribers by thousands, in almost every quarter of the Union,—the Publishers. grateful for the many favors shown to them, have determined to make such improvements in its character, as will greatly enhance its attractiveness and value, and render it worthy of still higher applause. For this purpose they have just purchased at much expense from the foundry of Mr. S. N. Dickinson, several founts of new Scotch cut type, with which the paper has been dressed throughout in a style of surpassing elegance and beauty, while its size has been greatly enlarged, and various other improvements introduced, making it one of the best and most attractive newspapers in the Union.

Among other leading features, the Blade will contain from ONE TO FOUR of the

Richest and most Interesting Stories of the Day.

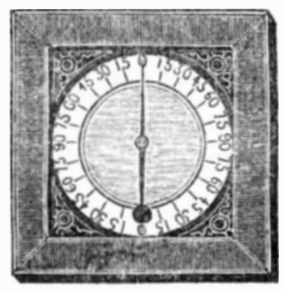
Not only original, but gems of the European and American Magazines, and in all cases a preference will be shown to such as can be published entire in a single paper. In addition its columns will be stored with POPULAR ESSAYS BY ABLE WRITERS, Choice and beautiful Poems, Gleanings from New Works, Selections from Foreign Journals, Mirth-creating Sketches, "Whittlings," Jokes, Scraps, News Items, and every thing else that can give zest and piquancy to the feast.

In brief, our object will be to render it an agreeable, entertaining and ever welcome Family Visitor, brimming always with INSTRUCTION and AMUSEMENT, and especially desirable to the FAMILY CIRCLE. MATHEWS, GOULD & CO.

Publishers. 138 1-2 Washington st., Boston, Mass.

☞ J. A. Tuttle & Co., 116 Nassau st. N. Y.; Stokes & Brother, Arcade, Philadelphia; and William Taylor, Baltimore, Md., are Agents for the Blade. j26

Plumb and Level Indicator.



THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S. by Express.

For sale, wholesale and retail, at this office. Address MUNN & CO (post paid) ☞ Price $1 single. A discount to dealers. m13 tf

PATENT AGENCY AT WASHINGTON.

ZENAS C. ROBBINS,

Mechanical Engineer and Agent for procuring Patents.

WILL prepare the necessary Drawings and Papers for applicants for Patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the Patent Laws and decisions in the United States or Europe. Persons at a distance desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward (post paid, enclosing a fee of five dollars) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, promptly communicated. All letters on business must be post paid, and contain a suitable fee, where a written opinion is required.

Office on F street opposite Patent Office.

He has the honor of referring, by permission, to Hon. Edmund Burke, Com. of Patents; Hon. H. L Ellsworth, late do; H. Knowles, Machinist, Patent Office; Judge Cranch, Washington, D. C.; Hon. R. Choate, Mass., U. S. Senate; Hon. W. Allen, Ohio, do; Hon. J. B. Bowlin, M. C. Missouri, Hon. Willis Hall, New York; Hon. Robert Smith, M. C. Illinois; Hon. S. Breese, U. S. Senate; Hon. J. H. Relfe, M. C. Missouri; Capt. H. M. Shreve, Missouri. j23

GENERAL PATENT AGENCY.

REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 12 Platt to 189 Water street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.

m8 3m* SAMUEL C. HILLS, Patent Agent.

AMERICAN HARDWARE.

THE SUBSCRIBER having been engaged in selling American Hardware on commission for 7 years, solicits consignments from manufacturers, and will refer to those who have employed him the above number of years. SAMUEL C. HILLS,

m8 3m* 189 Water st.

AGRICULTURAL TOOLS.

INVENTORS and Makers of superior Agricultural Implements are notified that the subscriber will sell such articles on commission, and make prompt returns. SAMUEL C. HILLS,

m8 3m* 189 Water st.

© 1847 SCIENTIFIC AMERICIAN, INC

Manufacture of Shell Cameos.

We were not aware of what substance Cameos were made until we were surprised by a friend of ours, Samuel Carter, an amateur artist belonging to Albany, whose universal genius displayed to our astonished view some of the most beautiful carvings that we have ever seen, made upon the Queen Conch shell.—Since then we have some enquiries into the business and have collected the following facts relative to the art. The shells generally used are those of the Flesh-eating Univalve which are formed of three layers of calcarous matter, each layer being a perpendicular lamina, placed side by side. The kinds which experience has proved to be the best for the purpose are the bull's mouth, the black-helmet and the queen conch. The first is allowed to be the best. The art was confined to Rome for near half a century and to Italy until the last twenty years. The first cameo made out of Italy, was by an Italian in Paris and now about 200 persons are employed in making cameos in that city. The number of shells used annually thirty years ago, was about 300—the whole of which were sent to England, the value of each shell in Rome being about $7.—The number used in France last year was 100,500, in value (shell) $44,800. The average value of large cameos made in Paris is about one dollar twelve and a half cents each. The whole value of cameos made in Paris last year was about $200,000. In England not more than six persons are engaged in the trade. In America about the same number, but yankee genius, as in the instance to which we have adverted, has entered the field of cameo art and soon we shall be provided with republican gems, carved with republican hands, to deck the bosoms of our republican girls.

New Mode of Painting.

The Paris journals announce a new mode of painting as a substitute for fresco, discovered by a French chemist, M. Chevot.—They say: "It is called by the author Fresque Mixturale; and consists of a composition which effectually resists the action of saltpetre, so fatal to fresco painting wherever there is saltpetre in the walls on which it is laid. The effect of M. Chevot's painting is so bold as that for which it is a substitute, and the colors are as vivid. It possesses not merely the advantage of resisting the effect of saltpetre, but can be washed when dust or dirt has accumulated upon it with quite as much security as oil paintings. Unlike fresco paintings, it never chips off; and every thing indicates that it will resist longer than any other process the action of time.

New Method of Cleansing the Lenses of Telescopes.

The ordinary method of cleansing the object lens of a telescope is by means of spirit of wine The process produces, in a few minutes, a remarkable opacity in the glass, which much impairs its transparency, and renders the operation of wiping necessary, as often as the instrument is used. M. Sivet announces as the results of his experiments upon the subject, that the use of sublimed sulphur, with animal charcoal, in the proportion of two of the former to one of the latter, is attended with the most desirable results—viz. the most effectual cleansing of the lens, at the same time preserving its perfect transparency.

Improved Galvanizing Process.

This process, by taking up a smaller portion, of zinc, and yet giving the iron a far more protective covering is effected by surrounding the zinc bath with another metal, which melts at a little lower temperature and thus preserves the zinc from the action of the fire, keeping it at a temperature just above the melting point, which also has the effect of preventing the iron from becoming deteriorated, and portions of it mixing with the zinc in the bath.

The editor of the Art Union Journal says he has recently seen a block of ice two feet long and nearly two inches thick produced from pure spring water, in twenty minutes

A Castle of Chemical Ice.

At a lecture last month delivered at the London 'Western Institution,' on the qualities and Uses of Ices, a remarkable object in the room was a model castle, with towers and battlements complete, the whole raised of chemical created ice from the manufactory of Lings and Keith, Princes-street, Leicester-square. The mode of manufacturing the ice is exceedingly simple, viz: A cylinder is half filled with pure cold water, and a preparation of salts being mixed with it, water in a tube small in proportion as the cylinder is large, freezes at a temperature of 32 degrees. The "Patent Ice Safe" is an improvement on the ordinary safe by the introduction of closets that are kept cool by being supplied with ice compartments on either side, and farther protected by other compartments filled with charcoal or a similar non-conducting substance. One little expected to find in this country (says Douglas Jerold) even in minature, and least of all in Summer, anything like that freak of the "Imperial Mistress of the fur-clad Russ," the ice-palace of the Empress Catharine; a freak which led to one good result—Cowper's exquisite description and moralizing comparison of the structure to the court of kings—

"———as worthless as it seemed
Intrinsically precious, to the foot
Treacherous and false; it smiled, and it was cold."

Chinese Mode of Fishing.

The most singular of all the methods of catching fish in China, is that of training and employing a large species of cormorant These are certainly wonderful birds. They are frequently met with on the canals and lakes in the interior There are generally two small boats, containing one man and about 10 or 12 birds each. The birds stand perched on the side of the little boat ready to commence operations. They are so well trained that when they go on the water they immediately scatter themselves and look for fish. They have a beautiful sea-green eye, and quick as lightning, they see and dive upon the finny tribe, which once caught in the sharp notched bill of the bird, never by any possibility can escape. The cormorant when it takes a fish rises to the surface with it in its bill, and the moment he is seen by the Chinaman, he is called back to the boat. As docile as a dog he swims after his master, and allows himself to be pulled into the boat, where he disgorges his prey, and again resumes his labors. And what is more wonderful still, if one of the cormorants gets hold of a fish of a large size, so large that he would have some difficulty in taking it to the boat, some of the others, seeing his dilemma, hasten to his assistance, and with their efforts united capture the fish, and haul him off to the boat. Sometimes a bird seems to get playful or lazy, and then the Chinaman with a long bamboo used for propelling the boat, strikes the water near where the bird is, without hurting him, calling out to him at the same time in an angry tone. Immediately like the truant schoolboy who neglects his lessons and is found out, the cormorant gives up his play and resumes his labors. A small string is put around the neck of the bird to prevent him swallowing the fish which he catches; and great care is taken that this string is placed and fastened so that it will not slip further down and choke him, which otherwise it would be very apt to do.

Science for the Kitchen.

Professor Liebig, in a letter to Professor Sillimen, says. "The method of roasting is obviously the best to make flesh most nutritious." But it does not follow that boiling is to be interdicted. "If a piece of meat be put in cold water, and this heated to boiling, and boiled till done, it will become harder and have less taste, than if the same piece had been thrown into water already boiling. In the first case the matters grateful to the smell and taste, go into the extract—the soup, in the second, the albumen of the meat coagulates from the surface inward, and envelopes the interior with a layer which is impermeable to water. In the latter case, the soup will be different, but the meat delicious.

The number of plants in the world has been variously estimated at from 30,000 to 100,000.

THE ART OF PAINTING.

(*Continued from No* 47.)

LANDSCAPE PAINTING ON WALLS OF ROOMS.

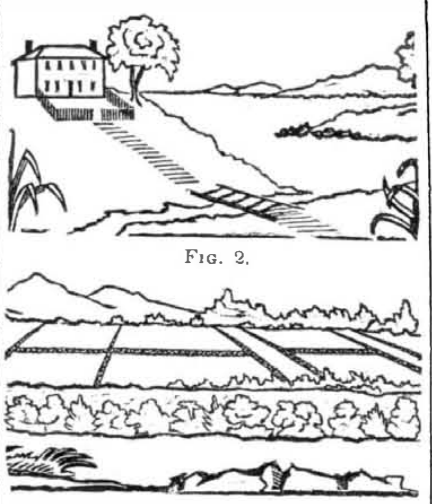


FIG. 2.

This branch of painting admits of such an endless variety of designs, that it would be in vain to attempt to give even a tolerable assortment for the use of a practitioner, in anything short of a book of 200 pages. We have presented two or three slight outline sketches, however, at the head of this article, and shall furnish a few more in our next. The first sketch merely represents two capes in the third and fifth distance, with an ordinary farm house on the second, and a foot bridge crossing a small creek. The second sketch represents a plain second distance, which is separated from the fourth distance by a river, on the near shore of which is a row of trees or bushes, partly concealed by the land. In the fourth distance is represented fields in perspective, with a road leading off from the river, as designated by the side fences: and high lands in the fifth distance. A beautiful effect may be sometimes produced by a slight representation of towns or cities in the fifth distance, of merely a few touches of the pencil with faint colors, but which, assisted by the imagination of the beholder, will appear to represent spires, warehouses, streets and wharves and shipping at anchor or under sail, in the harbor. The only colors to be used in such representations are light slate, horizon red and white, each mixed at least with an equal quantity of sky blue. Some of the most prominent objects and scenes which may be often repeated, though under different arrangements, are farms, fields, forests, farm-houses, palaces, arbors, windmills, observatories, villages, high rocks, ships, steamboats, sail boats, islands, hunting scenes, carriages, cattle feeding or watering, children at play, military parades, water-falls, flower gardens, flocks of birds, balloons, canals, water-mills, railroads, bridges, &c. There must be a general consistency observed, and one scene made to connect with another, even although the different scenes should represent different seasons of the year. Whenever water-mills, cascades, cataracts, or even small brooks occur, a valley must be shewn, through which they may be seen or supposed to pass into the ocean; and if a road appears prominent at one point, it must be regarded in other more distant scenery, over which its route may be supposed to pass. The learner, for the purpose of acquiring the art of designing, should habituate himself to make close observations of objects, and scenery, and to imagine various scenes in his mind diverse from anything he has seen, and practice sketching such designs when his mind is most free from other cares. We shall proceed to the *chiaro-oscuro* painting in our next number.

(*To be continued.*)

To have Good Teeth.

We have seen some receipts for keeping away toothache by using charcoal powder for washing them, &c. We know of no substance to equal charcoal dust for a tooth powder, but if the stomach be disordered nothing can prevent its effects upon the teeth The only true preventatives of toothache, are simple diet, plenty of exercise in the open air, and cleanliness in every respect.

Tincture of Roses.

Take leaves of the commmon rose, place them, without pressing them, in a bottle, pour good spirits upon them, close the bottle, and let it stand until it is required for use. This tincture will keep for years, and yield a perfume little inferior to otto of roses. A few drops of it will suffice to impregnate the atmosphere of a room with a delicious odor. Common vinegar is greatly improved by a very small quantity being added to it.

How a Farmer out West preserves his Eggs.

A two gallon pot is filled with eggs; and one pint of lime, of the consistency of common white wash, is poured in. and the pot is filled with water. A board is then placed on the top, and the water, which is never changed, as well as the eggs, remains pure and sweet. This practice is the one most common in France, the inhabitants of which, to their love of frogs and soup, add also it appears, a very commendable taste for eggs.

To keep away the Moth.

Before folding up and putting away your winter blankets, furs, and other articles, sprinkle them, or smear them over with a few drops of oil of turpentine, either alone or mixed with on equal bulk of spirits of wine No stain will be left; and if spirits of wine be used, the odour is not disagreeable.

Medicine for Hogs.

The American Farmer furnishes the following: "When your hogs get sick, you know not of what, give them ears of corn, first dipped in tar and then rolled in sulphur. It is ten to one but it arrests the disease and restores the pig to perfect health."

Leather canons were used with considerable success by the Swedes in 1631.

THE NEW YORK
SCIENTIFIC AMERICAN:

Published Weekly at 128 *Fulton Street.*, (*Sun Building,*) *New York, and No.* 13 *Court Street, Boston; the principal office being at New York.*

BY MUNN & COMPANY.

The SCIENTIFIC AMERICAN is the Advocate of Industry and Journal of Mechanica. and other Improvements: as such its contents are probably more varied and interesting, than those of any other weekly newspaper in the United States, and certainly more useful. It contains as much interesting Intelligence as six ordinary daily papers, while for *real benefit*, it is unequalled by any thing yet published Each number regularly contains from THREE to SIX ORIGINAL ENGRAVINGS, illustrated by NEW INVENTIONS, American and Foreign,—SCIENTIFIC PRINCIPLES and CURIOSITIES,—Notices of the progress of Mechanical and other Scientific Improvements Scientific Essays on the principles of the Sciences of MECHANICS, CHEMISTRY and ARCHITECTURE,—Catalogues of American Patents,—INSTRUCTION in various ARTS and TRADES, *with engravings*,—Curious Philosophical Experiments,—the latest RAIL ROAD INTELLIGENCE in EUROPE and AMERICA,—Valuable information on the Art of GARDENING, &c. &c.

This paper is especially entitled to the patronage of MECHANICS and MANUFACTURERS, being devoted to the interests of those classes. It is particularly useful to FARMERS, as it will not only apprise them of IMPROVEMENTS in AGRICULTURAL IMPLEMENTS, but INSTRUCT them in various MECHANICAL TRADES, and guard against impositions. As a FAMILY NEWSPAPER it will convey more USEFUL Intelligence to children and young people, than five times its cost in school instruction.

Being published in QUARTO FORM, it is conveniently adapted to PRESERVATION and BINDING.

TERMS.—The Scientific American is sent to subscribers in the country at the rate of $2 a year, ONE DOLLAR IN ADVANCE, the remainder in 6 months. Persons desiring to subscribe, have only to enclose the amount in a letter, directed to

MUNN & COMPANY.

Publishers of the Scientific American, New York.

☞ Specimen copies sent when desired. All Letters must be POST PAID.

© 1847 SCIENTIFIC AMERICIAN, INC